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Michael ADENDORFF et al.)	
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Filed: November 16, 2001)	Examiner: Not yet assigned
)	
For: DATA WAREHOUSE SYSTEM)	

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

SUBMISSION OF CERTIFIED COPIES OF FOREIGN PRIORITY DOCUMENTS

Pursuant to 35 U.S.C. § 119(b), Applicants filed a claim for priority to two foreign

patent documents: Canadian Patent Application Nos. 2,339,063 and 2,349,277, filed

March 1, 2001 and May 31, 2001, as noted on the Official Filing Receipt. In support of

this claim, Applicants hereby submit a certified copy of each of these foreign patent

documents as specified in 35 U.S.C. § 119(b)(3).

Accordingly, Applicants request that these documents be associated with this

file. Please charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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Dated: February 2⅝, 2002   By: _____

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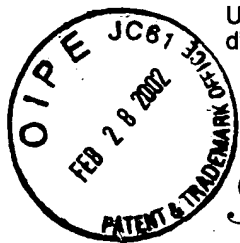Fax 202.408.4400
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La présente atteste que les documents ci-joints, dont la liste figure ci-dessous, sont des copies authentiques des documents déposés au Bureau des brevets.

This is to certify that the documents attached hereto and identified below are true copies of the documents on file in the Patent Office.

Specification and Drawings as originally filed, with Application for Patent Serial No: **2,339,063**, on March 1, 2001, by **COGNOS INCORPORATED,** assignee of Thomas Fazal, David Strutt and Robert Gibb, for "System and Method for Business Performance Management".

_____
Agent certificateur/Certifying Officer

January 15, 2002
_____
Date

Canada

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ABSTRACT

Most organizations lack the time and resources to build their own integrated warehouse
solutions from scratch. The business performance management system provides enterprise-
wide business intelligence out of the box, and is to provide true end-to-end integrated data
warehousing, business performance analytics and reporting in one comprehensive package.

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System and Method for Business Performance Management

FIELD OF THE INVENTION

5   This invention relates to a system and method for business performance management, and more particularly to a system and method for business performance management to assist making business and organizational decisions.

BACKGROUND OF THE INVENTION

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The hyper-competitive e-business economy has redefined relationships between companies and their customers, suppliers, and partners. With competitors but a click away, long-cultivated customer loyalty can evaporate in a keystroke and the emphasis on speed to market and cost containment has transformed suppliers from distant third parties into

15   integral corporate allies.

Successfully managing customer and supplier relationships in this digitally driven environment means successfully managing two-way information flows. Organizations—both dot-coms and brick-and-mortar enterprises—have responded by redefining processes

20   and harnessing speed and information, the pass codes to e-business competitive advantage.

These organizations realize that their futures depend on extracting important information from the mounting sources of data around them and then leveraging this information to make better and faster business decisions. Coming to grips with the analysis and reporting

25   limitations of their enterprise resource planning (ERP) systems is an important part of this process, and many organizations are building data warehouses and data marts to optimize data to deliver the business insight they require to compete.

Unlocking the Power of Data Assets

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In the e-business economy, how quickly and successfully companies manage and apply information dictates how well they accelerate top-line business growth, improve operations,

and sustain competitive advantage. Transforming data into meaningful information allows them to see and react to business drivers, propelling them toward achieving their goals.

Where do organizations get this data? Ideally, it comes from back office ERP systems,
5 front office, and e-business sources. In essence, this data allows companies to accomplish two important objectives: First, by capturing information from all customer and supplier touchpoints, organizations can build the foundation for effective CRM (customer relationship management) analytics, and SCM (supply chain management) analytics. Second, augmenting the data with a robust analysis and reporting infrastructure enables
10 them to measure business performance and improve strategic decision-making.

If they can armed with a 360° view of their businesses, companies can quickly match cause and effect and improve decision-making. For instance, an inventory manager will be equipped to answer a wealth of business questions: How much money have we invested in
15 stock? How effectively are we managing and forecasting our requirements? How does stock move through our organization? How effectively are we allocating our resources?

Capturing, sharing, and using this type of information strategically equips organizations to compete in the e-business world. They gain the insight to quickly discern what is important
20 and then act decisively before competitors lead customers away or supply chain problems siphon profits from the bottom line.

Business analysis and reporting solutions transform data into information that people can use. It turns volumes of data into key performance indicators, company-wide scorecards,
25 pattern and trend analyses, and status reports. Sharing this information via intranets, extranets, and the Internet with everyone in the e-business value chain—decision makers, employees, customers, suppliers, and partners—allows companies to build competitive advantage and effectively manage customer and supply chain relationships and processes.

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Addressing the Limitation of ERP-Based Reporting Systems

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In the information-savvy e-business world, rapidly deriving business insight from vast amounts of data is key to success. Companies must offer solutions that integrate accurate, current information into a consistent view—an important source of value delivered by business analysis and reporting solutions. This way, everyone works with the same data

5 and business measurements.

Most large organizations use ERP systems to consolidate day-to-day transaction data and streamline business functions such as manufacturing. With their predefined, standard reporting capabilities, however, these ERP systems are not optimized to support the

10 flexible, ad hoc business analysis and reporting businesses need today to make strategic decisions and improve business performance. Basically, ERP systems are not intended to serve as e-business analysis and reporting infrastructures.

For example, generating a report from an ERP system that shows product line sales by

15 region by sales person for the past five years would typically be quite time-consuming. With their multitude of tables, fields, and column names, ERP systems are not well suited to end-user navigation. Without easy information access, and the means to quickly analyze and report on findings, users can easily overlook important business correlations or veer off-track completely. Ultimately, the quality and speed of decision-making suffer.

20

In addition, if hundreds or thousands of users were to submit queries directly, ERP system performance would be impacted, jeopardizing important production system functions. This, along with the risks associated with giving the extended e-business enterprise direct access to ERP systems, necessitates placing ERP data into an environment that is not only

25 optimized for business analysis and reporting, but also for secure broad access. Seeking predictable performance and desiring to give users all the information they need quickly, many companies opt to build either data warehouses or data marts.

Enterprise Data Warehouses—The "Big Bang" Approach

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Created by extracting data from operational or transactional systems (like ERP sources) and e-commerce systems and installing it in a more analysis- and reporting-friendly database, data warehouses are repositories of data that support management decision making.

5   However, data warehouses are expensive to build and they can take 18 to 24 months to create—an eternity in Internet time. Consequently, with enterprise information requirements evolving so fast today, data warehouses often fail to meet requirements when they are finally completed. Moreover, they require specialized skills and experience to build successfully.

10

Because of their sheer scope, data warehouses seldom produce the finely tuned analysis and reporting that e-business decision-making depends upon. Intended to be all things to all people, these warehouses focus on breadth of content, rather than the depth of vital information sweet spots users need.

15

Data Marts—The Stovepipe Approach

Unlike data warehouses that combine and make all corporate data available across an enterprise, data marts focus more narrowly, serving specific business areas or departments.
20   Data marts also take less time and money to build and can therefore generate quicker payback than data warehouses.

Sound in principle, data mart creation can stumble in practice. While data marts can be built incrementally, they do not provide a holistic view of the enterprise. Companies will
25   build a data mart for Sales, another for Inventory, another for Finance, and so on. Unless these marts are coordinated, they act as stovepipes and prevent users from sharing information across the enterprise. They also duplicate data and lead to lengthy updates because each mart must be refreshed individually. If companies update the marts at different times—even just a couple of hours apart—some users will have more current
30   information than others. This lack of synchronization can lead to inconsistent analysis across the enterprise and cause users to question the integrity of the analysis and reporting solution.

5

For instance, users of one mart might define a "large" customer as one that generates more than $50,000 in revenue a month. Users of another might define a large customer as one that orders more than 100 units a month, which may only represent $10,000. In these cases,

5   people can mistakenly think that they are discussing common ground. Not only may different marts define dimensions differently, they can calculate measures differently as well. For example, one department might compute "profit" by including bad debts and another may exclude them.

10   These types of inconsistencies not only create mis-understandings, they can delay schedules and increase costs, jeopardizing customer satisfaction and profits.

An enterprise's ability to advance its competitive position will soon be based in large part on how well it is able to achieve and maintain a "360 degree" view of its operational and

15   financial effectiveness, customer relationships, and supply-side activities. Employees will need facts to measure and respond to business conditions immediately. Although current technologies are strong enough to address these concerns most of today's proffered solutions demand deep pockets and tons of implementation time—and they often leave the enterprise vulnerable.

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Here are some of the areas of exposure. When an enterprise engages a consultant to build an analytic architecture, a knowledge gap can remain when the consultant finishes the project. Shortcuts often worsen matters. Deploying two or more data marts independently using typical methods can help the enterprise labor at "Internet speed." The problem?

25   Different constituencies may not be working with the same data and metrics. Given the potential for quickly proliferating "misinformation" throughout the enterprise, organizations should be grateful that their expensive analytic environments are often underused.

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SUMMARY OF THE INVENTION

The present invention uses an enterprise-wide integrated data warehouse solution which gives users both the perspectives that traditional data warehouses offer and the incremental

5   development that data marts provide. It enables users to address the business analysis and reporting needs of various functional areas or groups of their organizations, such as Sales, Finance and Inventory, while integrating and coordinating these groups by using shared dimensions.

10   BRIEF DESCRIPTIONS OF THE DRAWINGS

Embodiments of the invention will now be described with reference to the accompanying drawings, in which:

Figure 1 is a diagram showing an example of results of timing.

15   Figure 2 is a diagram showing an example of a holistic view of an enterprise.

Figure 3 is a diagram showing an example of a screen-shot of the Financial Analysise-Application.

Figure 4 is a diagram showing an example of a screen-shot of the Inventory Analysis Suite of e-Application.

20   Figure 5 is a diagram showing an example of a screen-shot of the Sales Analysis e-Application.

Figure 6 is a diagram showing an example of interrelations of tables.

Figure 7 is a diagram showing an example of Sales Analysis Schema.

Figure 8 is a diagram showing an example of Inventory Analysis Suite Schema.

25   Figure 9 is a diagram showing an example of Financial Analysis Schema.

Figure 10 is a diagram showing an example of Slowly Changing Dimensions.

Figure 11 is a diagram showing an example of Changed-Data Capture.

Figure 12 is a diagram showing an example of a screen-shot of the e-Applications console.

Figure 13 is a diagram showing another example of a screen-shot of the e-Applications

30   console.

Figure 14 is a diagram depicting an example of the e-Application.

Figure 15a to Figure 15y are diagram showing an example of a data model.

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Figure 16 is a diagram showing an overview of an example of a Business Performance Management System;

Figure 17 is a diagram showing the structure of an example of a Business Performance Management Model;

5   Figure 18a and 18b are diagrams showing an example of a Business Performance Management Backbone;

Figure 19 is a diagram showing an example of a Business Performance Management Foundation;

Figure 20 is a diagram showing an example of Business Performance Management for

10   Supply-Side Performance Management;

Figure 21 is a diagram showing an example of Business Performance Management for Demand-Side Performance Management ;

Figure 22 is a diagram showing an example of Business Performance Management for Financial Performance Management;

15   Figure 23 is a diagram showing an example of Business Performance Management for Sales Analysis;

Figure 24 is a diagram showing an example of Business Performance Management for Accounts Receivable Analysis;

Figure 25 is a diagram showing an example of Business Performance Management for

20   General Ledger Analysis;

Figure 26 is a diagram showing an example of Business Performance Management for Accounts Payable Analysis;

Figure 27 is a diagram showing an example of Business Performance Management for Inventory Analysis;

25   Figure 28 is a diagram showing an example of Business Performance Management for Procurement Analysis;

Figure 29 is a diagram showing an example of a Business Performance Management Data Model;

Figure 30 is a diagram showing an example of Business Performance Management

30   Application;

Figure 31 is a diagram illustrating sales and marketing information requirements;

Figure 32 is a screen shot illustrating a step of generating a report;

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Figure 33 is a screen shot illustrating a step of generating a report;

Figure 34 is a screen shot illustrating a step of generating a report;

Figure 35 is a screen shot illustrating a step of generating a report;

Figure 36 is a screen shot illustrating a step of generating a report;

5   Figure 37 is a screen shot illustrating a step of generating a report;

Figure 38 is a diagram illustrating accounts receivable information requirements;

Figure 39 is a diagram outlining high-level activities within an organization's finance functions;

Figure 40 is a diagram illustrating accounts payable information requirements;

10   Figure 41 is a diagram illustrating information requirements;

Figure 42 is a diagram illustrating procurement requirements.

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DETAILED DESCRIPTION OF EMBODIMENTS OF THE INVENTION

An embodiment of the invention provides an integrated data warehouse which offers the benefits of both data warehouse and data mart, i.e., the breadth of an enterprise-wide data

5 warehouse and the luxury of incremental data mart implementation. This structure enables an organization to maximize the return on its ERP, e-commerce, and other source data system investments. Released from the analysis and reporting confines of ERP systems, users can now creatively explore business problems and make equally creative and effective business decisions.

10

Moreover, users can incrementally add data marts over time, expanding the integrated data warehouse at their own pace. Each new mart fits seamlessly with its predecessors, extending the scope of the data warehouse to produce effective cross-functional business content—the fundamental information users need to understand their business drivers.

15

For example, if the inventory turnover rate suddenly dropped, users would want to know why. With an integrated data warehouse system comprised of several subject-specific marts, users could explore whether the root of the problem lies in Sales or in Inventory, perhaps the result of a change in the company sales compensation plan or a tightening of

20 credit policy. By sharing the same conforming dimensions (for instance, "product") in both the Sales and Inventory marts, users could generate these types of revealing cross-functional views. The result: enterprise-wide decision-making is vastly improved.

Assessing Key Success Factors

25 Creating and implementing a successful integrated data warehouse involves a lengthy series of complex steps and activities, and requires expertise in numerous highly specialized areas.

Despite the substantial hurdles, some IT departments elect to build data warehouses themselves. It is not unusual for these projects to end up over budget, miss major

30 milestones, or even fail due to the unanticipated complexity of extracting, transforming, and loading the right data.

10

Before attempting to build an integrated data warehouse, IT departments need to fully assess the obstacles and risks involved.

The Data Warehouse Skills Inventory

5   An integrated data warehouse project requires a diverse array of skills and experience. The following six "make or break" skill-sets are important to a successful implementation.

Business Requirements Analyst

Acts as liaison between the data warehouse project team and the warehouse's end users.

10   This person identifies and documents the needs of the business and produces a plan for addressing these needs using the data warehouse. The Business Requirements Analyst must have excellent communications skills and an ability to assess business information needs.

Subject Matter Experts

15   Typically end users who are familiar with the information and business needs of the internal groups or areas that they represent and who have significant knowledge of the data. These people help standardize on different aspects related to the data and work to resolve issues across business areas.

20   ### Source Systems Experts

Identifies source fields based on the requirements specified for the warehouse. Also identifies the source hurdles that will need to be overcome in order to implement.

Data Architect

25   The Data Architect develops and maintains the logical and physical data models of the warehouse, and is able to identify the most valuable data, integrate it, and develop the correlating data model. Also responsible for recommending the optimal system of record, the Data Architect must ensure the company's business needs are incorporated into a technical solution.

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Data Acquisition Developer and Architect

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Responsible for extracting data from a source system, performing associated transformations, and making the data available for loading into the data warehouse. The Data Acquisition Developer and Architect must understand extraction and transformation, identify transformations, and define source-to-target mappings.

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Business Intelligence (BI) Developer

Develops solutions that allow end users to easily and consistently access the data warehouse. The BI Developer must clearly understand the business needs, be able to incorporate these into technical solutions, and be skilled in end-user access, reporting, and
10   analysis tools.

The Steps to Build an Integrated Data Warehouse

Assembling the necessary skills and expertise is the first step of many involved in the
15   process of successfully developing an integrated data warehouse.

Process Involved in Building an Integrated Data Warehouse
1. Establishing End-User Needs
- Business requirements analysis
20   2. Data Mart Design
- Logical data model
- Physical data model
3. Source System Analysis
- Source system analysis and mappings
25   4. Data Mart Creation
- Data acquisition process design
- Data acquisition construction
5. Target System and Configuration Environment
- Technical architecture design
30   6. Data Mart Operation
- Maintenance and administration

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7. Business Performance Management (which includes Business Analysis and Reporting (Business Intelligence) and other features described herein

- Data access design

- Data access construction

5   Assessing business requirements can take up to 50% of the entire effort of building a warehouse.

Establishing End-User Needs

10   An IT department has to know its users' business requirements from A to Z. How will people use information? What questions do they need answered? Do they want high-level views or transaction details? Will they use this information in their offices or on the road? Only by exploring users' business requirements—and fully understanding how the departments of your enterprise interact—will a user be ready to create the appropriate

15   metrics and business rules an effective analysis and reporting solution requires. Including the content in the warehouse that effectively supports business goals is the key to achieving maximum return on investment.

Data Mart Design

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Designing data marts involves turning the business needs you have identified into useful data. The process requires designing the data mart logical data model and the subsequent physical data model. Users will need to answer many questions at this stage: Which end users should be involved during the design sessions? Do data sources exist for some or all

25   of the intended data? Have they chosen an ETL tool? Will the initial design include metadata? If so, will it comprise technical metadata, business metadata, or both?

Once these questions are addressed, to optimize the solution for business performance management, users need to design a high-speed star schema data marts that logically

30   arranges data and allow for cross- functional views of business operations. Simply put, the star schema data marts, based on relational data, uses shared, conformed dimensions to achieve a unified view of traditional bricks-and-mortar and e-business processes. In effect,

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a Sales data mart would define "Product X" the same way that the Inventory data mart does. These marts should also be scalable and contain embedded knowledge of the business performance management applications they will serve.

5   Source System Analysis

The next step, source system analysis, needs to be undertaken by someone who is familiar with the user's ERP, e-commerce, and other source systems as well as any modifications that they have made to them. This expertise is necessary to identify which data to extract

10   and how to extract it.

The source system expert needs to understand the unique parameters, fields, hierarchies, and technical approaches that characterize each ERP solution. Many organizations outsource the initial design of their ERP and e-commerce systems to consultants who take

15   their source expertise with them once the contract is completed. This, coupled with the high rate of movement of in-house IT resources leaves companies with a knowledge gap regarding these complex source systems. The solution is typically to retain consulting expertise, which can become prohibitively costly and, depending on a consultant's availability, even delay the solution delivery date.

20
Data Mart Creation

Once users know where to look for data in the source systems, their next step is to develop source to target mappings and ensure that they extract, transform, and load ERP and other

25   data into their data marts. Poor source data quality, missing source data, and redundant source data, among other challenges, can complicate this process.

Ultimately, the ETL system should flag errors during the ETL process, minimize computing resources, maximize automation, and incorporate best warehousing practices such as slowly

30   changing dimensions, history preservation, and changed-data capture. Delivering these capabilities will ensure that the process runs as smoothly as possible and that the data generated is accurate.

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Users also need to know how to incrementally add data marts. For instance, if a user adds an Inventory mart to their existing Sales and Finance marts, the user must be careful to avoid creating data definition conflicts between the marts. Synchronization and

5   coordination are key because problems at this stage can sabotage data integrity.

Target System and Configuration Environment

Is the user using an NT application server to run your ETL code and populating an Oracle

10   database on a Unix platform? Or is the user running their ETL code on Unix and populating a Microsoft SQL server on NT? Depending on the platform and database, the user will have to vary the way that they install and configure their solution.

Data Mart Operation

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Tasks associated with operating, managing, and maintaining the integrated data warehouse include loading data marts from operational systems, troubleshooting the system, restarting failed jobs, and scheduling jobs so that they minimize impact on source systems.

20   Business performance management

To derive full value from the business performance management solution, users must be able to answer in-depth questions such as "Which customers in the western sales region have increased their purchases by more than 30 percent in the past three years?" or "How

25   much revenue did we generate from international sales of Product X last November?" These types of complex queries—involving time, geography, product lines, revenues, and other business variables—require that multiple dimensions and levels of detail be examined.

The business performance management solution must allow users to make connections

30   between these cross-functional variables, connections that will provide insight into what is driving the business.

15

Building the Solution From Scratch: The Impact on It

Building an integrated data warehouse from scratch requires substantial IT expertise, not to
mention equally substantial time and money. Fortunately, IT departments have an option
5   that puts robust decision-making solutions in the hands of users quickly and cost-
effectively. This invention offers an out-of-the-box integrated analytic solution called e-
Applications that allows IT departments to provide users with high quality cross-functional
business performance management in only a matter of weeks, freeing up specialized IT
resources for immediate impact.
10

Out-of-the-box e-Applications save users a complete business cycle in deploying and
extending their integrated data warehouse solution. (See Figure 1).

The embodiments of the invention are further described based on the following two aspects
15   or dimensions
A.   A Business Performance Management System
B.   That has been packaged as a product (i.e. on a CD)

Fig 16 shows a Business Performance Management (BPM) system in accordance with an
20   embodiment of the invention. The BPM system comprises:

1.   Business Performance Management Model
_   Is demonstrated through the BPM Model Diagrams (See Figs. 18)
_   The BPM Model supports the BPM System
25

2.   Dimensional Data Model
_   Is demonstrated through the Dimensional Data Model Diagrams (See Figures 15a to
15y and Figure 29)
_   The Data Model implements the BPM Model
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3.   BPM Application
_   The BPM Application implements the Data Model

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— The BPM Application also represents the productization of the system

— Is demonstrated through the BPM Application Diagram (See Figure 30)

— More details describing the diagram below

5 An aspect of this invention relates to the challenges that organizations face when implementing business performance management (BPM). It provides a solution—integrated business performance management system—which comprises a series of coordinated functional areas. These coordinated functional areas allow companies to deliver value-laden enterprise-wide business performance management solutions that are

10 important to competitive advantage in the e-business economy.

Another aspect of this invention also relates to building a business performance management (BPM) system from scratch, and describes a packaged solution. The BPM system comprises of a BPM Model (aka Business Questions Model), a Dimensional Data

15 Model and a BPM Application comprising, the BPM Application comprising of complete end-to-end analytic applications for business performance management that include defined extractions and data models, proven business content, and best practices displayed through captured business metrics, and a full suite of key performance indicators (KPIs), reports, and analyses.

20

Built upon an operational framework and a robust production environment, the BPM system helps decision-makers rapidly derive business value from their enterprise data. By using the BPM system, organizations receive a wide, cross-functional view of their ERP and e-business data, which provides a strategic perspective on KPIs. And they reduce

25 implementation costs and effort, which accelerates time to results.

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Business Performance Measurement Solution

Establishing Business Content

5   One advantage of the BPM system lies in the quality of its business content. It is the business content that gives end users the ability to answer complicated questions involving numerous business dimensions and immediately gain the insight required to make strategic decisions. The basis of this content combines business intelligence expertise established by broad studies and best practices proven by experience—strategies which have helped many
10   of the world's leading companies generate maximum decision-making value from their data.

To create the BPM system and ensure that components of the BPM Application are business-ready out of the box, comprehensive information about the business questions that
15   users in specific functional areas face today were gathered. Furthermore, clients, professional associations, industry consultants, analysts, and subject matter experts—people who understand the challenges and the opportunities prevalent in each functional area— were extensively interviewed.

20   From the research, hundreds of function-specific questions common to business people in virtually all industries were identified. In other words, someone who manages a sales force for a pharmaceutical company will face many of the same business challenges as someone who manages a sales force at a textile company or a semiconductor company. After assembling and validating these questions, they were deconstructed each into business
25   measures, dimensions, and attributes—the building blocks of a star schema data mart. Business rules that govern how to derive measures such as "net profit margin" or "inventory balances"— measures that do not appear in ERP systems and must be created—were also established.

30   The processes underlying the BPM system was also explored and how companies managed their workflows within each functional area was determined. Questions were categorized as strategic, tactical, or operational and then the information needs associated with each

18

category were established. For example: What level of data granularity do users require? How much history do they need? Five years? Three years? How often do they need to refresh data? Do they have to know what happened yesterday to answer a given business question or can they wait until the end of the week?

5

Tailored to End-Users

Using an iterative design-and-build process, the solutions were tested in joint application development sessions, workshops, and client beta projects, continually refining the

10 components of the BPM system until they delivered optimum value. Ultimately, 50 per cent of development effort was devoted to collecting and refining the business content and ensuring that the BPM system gives users the analysis and reporting capabilities they need to excel.

15 The Business Performance Management Model

The structure of the Business Performance Management (BPM) Model is presented in Figure 17. It can also be represented as the BPM Backbone (See Figures 18a and 18b). The BPM Model includes the BPM Foundation (See Figure 19) which made up of multiple

20 Business Functional Areas (ie. Sales, Accounts Receivable, General Ledger, Accounts Payable, Procurement, Inventory, eCommerce, etc.). For the purpose of business performance management each Functional Area is divided into Areas of Analysis (currently there are over 30 Areas of Analysis, but this number may change as the BPM system evolves). The content of an Area of Analysis includes the Key Performance Indicators,

25 Measures, Dimensions and Attributes that are used to support the business analysis that can be performed.

The following list details, examples of each of the Functional Areas and the corresponding Areas of Analysis for the BPM Foundation. The BPM Foundation may continue to evolve

30 and grow to include more Functional Areas, more Areas of Analysis and More KPIs, Measures, Dimensions and Attributes.

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Business Performance Management Foundation Functional Areas

Examples of BPM Foundation Functional Areas and their respective Areas of Analysis
include:

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Sales Analysis (See Figure23)
    Sales Functional Performance
    Customer Profile, Buying Trends and Satisfaction
    Product Performance
10   Organizational Effectiveness
Accounts Receivable Analysis (See Figure 24)
    Accounts Receivable Functional Performance
    Customer Credit Scorecard
    Quality of Accounts Receivable
15   Corporate Self-Appraisal
    Accounts Receivable Cash In-flow
    Organizational Effectiveness
General Ledger Analysis (See Figure 25)
    Financial Performance Reporting and Analysis
20   Budget Analysis
    Key Financial Ratio Reporting and Analysis
    Operational Reporting Analysis
Accounts Payable Analysis (See Figure 26)
    Accounts Payable Vendor Profile
25   Accounts Payable Functional Performance
    Accounts Payable Cash Outflow Forecast
    Accounts Payable Organizational Effectiveness
Inventory Analysis (See Figure 27)
    Stock Overview and Valuation Analysis
30   Material Movement Activity Analysis
    Demand Analysis
    Material Reservations Analysis

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Physical Inventory Analysis

Inventory Forecasts

Procurement Analysis (See Figure 28)

Procurement Vendor Analysis

5   Material Related Expenditure Profile

Material Demand Analysis

Procurement Process Effectiveness

Procurement Organizational Effectiveness

Bill of Material Analysis

10   Human Resource Analysis

Payroll Analysis

Professional Development Analysis

Recruiting Effectiveness Analysis

Financial Controlling Analysis

15   Cost Analysis

Profitability Analysis

Customer Relationship Intelligence

Customer Profiling

Customer Base Demographics

20   Marketing Analysis

Process Effectiveness Analysis

Customer Satisfaction

Supply Chain Intelligence

Vendor Scorecarding

25   Demand Forecasting Analysis

Process Effectiveness

Inventory Status Analysis

Procurement Activity Profiling

30   The BPM Foundation also supports the following areas of "Cross-Functional" performance

management, among others:

Supply-Side Performance Management (See Figure 20)

21

Accounts Payable Analysis

Inventory Analysis

Procurement Analysis

Demand-Side Performance Management (See Figure 21)

5   Sales Analysis

Accounts Receivable Analysis

Financial Performance Management (See Figure 22)

Accounts Receivable Analysis

General Ledger Analysis

10   Accounts Payable Analysis

Each area of the BPM foundation is related to various dimensions as shown in the connecting lines in Figures 20-28. Each area is further described in details below.

15   Sales Analysis

The Sales Analysis Functional Area (Figure 23) includes the following Areas of Analysis:

Sales Functional Performance

Customer Profile, Buying Trends and Satisfaction

20   Product Performance

Organizational Effectiveness

The key objective of the sales and marketing functions is to plan, execute, manage, and monitor strategies and plans (ex. sales strategies, campaigns, and product strategies and

25   management) that are in alignment with the corporate strategies and will ultimately return the greatest value to the stakeholders. This requires an understanding of how effective an organization has been in generating revenue, as well as who and what have contributed to this performance.

30   This aspect of the BPM system for Sales Analysis delivers analysis which provides insight including:

22

- sales process analysis including sales order processing, distribution/order fulfillment, to
customer billing contribution of the sales organization (regions, offices, sales force) to
overall revenue and profit margin product line performance analysis and trends; and
- profiling of customer segments and individuals: assessing buying trends, customer
5   satisfaction in product quality and reliability.

Figure 23 is an example of a Functional Area, Sales Analysis. The Areas of Analysis,
dimensions, measures, attributes and KPI categories for Sales Analysis are also shown in
Figure 23.

10

BPM SALES ANALYSIS e-APPLICATION

Today's market presents companies with an unprecedented level of competition. The
Internet has given customers a new level of power and has blurred the differences between
15   companies vying for their business. In the e-business world, the key to closing more deals,
closing bigger deals, and closing them faster is to build strong customer relationships.

To do that, companies need the right information...intelligence... insights. They need to
spot top prospects and move quickly with solutions that hit the mark. They need the power
20   to analyze trends, avert bottlenecks, and put resources where they're required most.

BPM Sales Analysis e-Application turns raw data into increased sales. Companies can
select from a host of key performance metrics and decision-ready reports that enable them
to analyze forecast accuracy and pipeline volume, profile leads, calculate average deal size,
25   and examine revenues and profitability.

They will be able to evaluate discount practices, target customers who generate the highest
margins, and spot clients who cost the most. Know about prospects, customers, and product
performance. Identify opportunities, increase revenues, minimize costs, and shorten the
30   sales cycle.

23

Thriving in an electronic marketplace means embracing e-business and using technology to create, manage, and deliver analytical information. These are some of the business-critical activities that you can accomplish quickly with BPM Sales Analysis e-Application:

- Increase customer satisfaction and boost win rates
5   - Better understand the buying habits of your customers
- Refine the way that your company interacts with customers
- Improve forecasts and budgets
- Analyze channels, industries, customers, order types, product groups, and more!

10

THE CUSTOMER RELATIONSHIP MANAGEMENT PROCESS

With the increasingly competitive corporate marketplace being further magnified by the Internet, the need to understand, satisfy, retain and grow our customers is greater than ever.
15   This explains the emergence over the past several years of the Customer Relationship Management process across industries. The sales order process is a key component of the CRM process, with all front office touch point activities culminating in the sale of products or services, the delivery and invoicing of these goods. The BPM Sales Analysis e-Application addresses key questions for better understanding the whole (360-degree view)
20   customer – including indicators of customer buying trends, and measures of satisfaction.

SALES ANALYSIS – BUSINESS READY

25   Companies can use the BPM Sales Analysis e-Application to provide the information needed to make decisions that will keep customers, close sales faster, and generate more revenue.

- Get an integrated view of customer touch points
30   - Adopt a profit-centric sales model that aligns sales goals with corporate goals
- Develop more effective planning and forecasting with a big-picture view of the sales function

24

Analyse sales performance from unlimited perspectives including channel, industry, customer, order type, product group, and more.

INFORMATION REQUIREMENTS WITHIN THE SALES ORGANIZATION

5

The BPM Sales Analysis e-Application provides the information necessary for key analysis and decision making at various management levels within a company's sales and marketing organizations.

10 The key objective of the sales and marketing functions is to plan, execute, manage, and monitor strategies and plans (ex. sales strategies, campaigns, and product strategies and management) that are in alignment with the corporate mission and will ultimately return the greatest value to its stakeholders. This requires an understanding of how effective an organization has been in generating revenue, as well as who and what have contributed to

15 this performance.

In their efforts to achieve these objectives, managers within the sales and marketing functions require a keen understanding of "how things are going"...that begins with an analysis of the information being captured in the sales process. Managers need answers to

20 questions on:

- how the organization and its parts are contributing to overall revenue and profit margin

- how product lines are performing

- who are their most valuable customers, what are their buying trends, and how

25 effective are they satisfying customer expectations for quality and reliability, and

- how efficient the sales process is in generating revenue

The BPM Sales Analysis e-Application delivers information used to answer these questions, with the depth and breadth to meet the needs of managers at all levels of the organization,

30 including:

25

- High-level executive and senior managers who conduct strategic analysis on how marketing and sales strategies have impacted cross-organizational performance, monitors changes overtime and helps in identifying trends

- Sales, product and marketing managers who require tactical reporting and analysis
5   targeted at understanding the effectiveness of plans designed to meet corporate objectives

- Managers responsible for operational reporting (ie. sales representative customer base buying profile) and process effectiveness.

Figure 31 outlines the high-level activities within an organization's sales and marketing
10   functions. It is worth noting that while organizational structures can vary between companies (i.e., differences specific to company size, industries, culture), the questions addressed by the Cognos Sales Analysis e-Application are, for the most part, cross-industry in nature.

15   BPM AREAS OF ANALYSIS

The BPM Sales Analysis e-Application addresses four main areas of analysis within an organizations sales and marketing functions, aimed at assessing the effectiveness of the sales cycle from the sales order forward.
20

These areas of analysis include:

      - Sales performance across the organization

      - Customer profile, buying trends and satisfaction

      - Product performance
25   - Organizational effectiveness

SALES PERFORMANCE ACROSS THE ORGANIZATION

A fundamental measure of corporate effectiveness in marketing its products and services is
30   the question of "How much have we sold?"

Managers across the organization need to know how revenue, volume and margin expectations are being met. They need to know what parts of the organization are delivering on expectations, and how various regions are performing. These requirements filter down to the sales office and sales representative needing to know how they are doing, and how their performance is meeting expectations today and over time.

The BPM Sales Analysis e-Application delivers information for in-depth analysis of sales revenues (orders and invoiced), volumes and margin across the sales organization, addressing such questions as:

- How much has the company sold this period –revenue and volume? How does it compare to last period? What is the percent increase or decrease? What has been the trend over time?

- What regions have done well for us? Where are we losing ground? Are our high revenue regions delivering on margin? Are we seeing the percent growth necessary?

- How have the various sales organizations, channels or divisions contributed to our performance? Which are most effective? Who is meeting revenue and margin expectations, and who is not?

- How have corporate sales offices contributed this year? How do they rank?

- Who are the sales reps that are performing within their sales offices– and who is not? How do reps rank on revenue, volume, and margin? How has their contribution changed over time?

CUSTOMER PROFILE, BUYING TRENDS AND SATISFACTION

Organizations need a clear understanding of who their customer base is, what they want, and how their needs are being met. The emergence of the Customer Relationship Management process across organizations further supports the importance of comprehensive customer analysis.

Ultimately the effectiveness of corporate sales and marketing strategies, coupled with quality of product and service, should translate into greater "share of customer"- which can

be measured by changes in the breadth of product purchased, the volume of products purchase, and changes in contribution to revenue and margin over time.

The BPM Sales Analysis e-Application allows for analysis of customer trends and
5   contribution, changes in buying patterns, and corporate performance and key satisfaction measures. Examples of the types of questions that can be addressed include:

- How large is our customer base? How has this changed over time?

- What is the average revenue per customer? Which customer groups offer the highest total and average revenue contribution? Which groups are contributing most to
10 volume? Most to margin? How do our customer groups/segments rank in contribution to overall revenue?

- Have our average purchases per customer been increasing or decreasing over time? Have the number of products being purchased increased or decreased over time?

- Have revenues from a specific customer group been increasing over time – is this
15 an indication of trend – an opportunity? Have the revenues for these groups decreased – and if so is it a product offering or satisfaction issue?

- As a sales office, what has been the contribution of the customer base to our objectives? Who are our high versus low margin customers? Has this been changing over time? What have they been buying, how much and how often?

20   - As a sales representative, how has my customer base's profile changed over time? What are they buying from me – how much and how often?

Customer satisfaction questions include:

- What has been the return pattern of our customer base? Are there return levels
25 outside exception levels? Are these high returns specific to a customer group a specific customer? Are the returns specific to a region or sales office?

- Have we been shipping on time - as promised? How has this level of performance changed over time? Have late deliveries been to specific regions? What have our shipping patterns been within specific customer groups or customers?

30

PRODUCT SALES TRENDS

28

Knowing our customers and what they want opens a window to view the effectiveness of the corporate product offering. A key component to developing market strategies and product planning is an understanding of our markets segments, how the current product offering addresses the customer requirements, and how this has evolved over time. Sales
5 management and their teams also require analysis that allows them to assess the effectiveness of their operations and how products are contributing to achieving their goals within their markets.

The BPM Sales Analysis e-Application delivers product analysis to answer the questions of
10 both the sales and marketing functions, which include:
- What product lines or specific products are we selling? How much revenue are they generating? How have these lines contributed to overall margin? How have these products performed to the previous period? and over time? What has been the rate of change? Which products are emerging as leaders? Which products are experiencing
15 declining share?
- Where have the products been selling? Which regions? Which customer groups? Rank my leading customer segments for these products.
- Who has been selling these products? Which sales offices have performed in specific product lines? Which reps have championed sales in their regions?
20 - What products has our sales office been selling? What level of revenues or contributions have we generated from specific product lines or products? What volumes have we moved this period? How does it compare to the previous period?
- As a sales rep, what have I been selling? How has my product mix impacted my potential contribution to revenues and margins? Am I meeting my volume targets? How
25 has my performance change over time?

ORGANIZATIONAL EFFECTIVENESS

30 The importance of a company's strong understanding of its customer base and the effectiveness of its product offering has been identified as key. However, if the organization is to deliver on its commitment to maximizing the value delivered to its

shareholders, the sales function must extend its contribution to the goal by evaluating the effectiveness of the sales, shipping and invoicing process.

The BPM Sales Analysis e-Application provides details on the process ranging from addressing questions on volumes of transactions being processed and various points in the demand chain to how are resources being allocated. Examples of the types of questions that can be addressed include:

- How many sales orders/shipments/ invoices are being processed per year? How does this volume relate to revenue? Has this been improving over time?

- Which organizations are producing the highest volumes of transactions? How does their volume of transactions compare to the average revenue per transaction across the organization?

- Which shipping points are experiencing the highest volume of delivery processing? Has this been an ongoing trend? Does this relate to late deliveries? How does the number of late deliveries compare in the high volume shipping points compared to others?

THE POWER OF MULTI-DIMENSIONAL ANALYSIS

The questions listed above represent a sampling of the type of valuable information available in the BPM Sales Analysis e-Application, information that sales and marketing professionals require to effectively manage their roles and responsibilities.

While the questions address the demand for information regarding the sales, shipping and billing portion of the sales cycle, it must be noted that the analysis that is possible goes far beyond. The multi-dimensional nature of the Sales Analysis data mart, along with the power of Cognos PowerPlay and Impromptu offers robust analysis around any single question—further expanding the knowledge gained from the data extracted from the source ERP system.

Figs. 32 to 37 illustrate the ease with which a series of valuable reports can be generated from any starting point.

For example, TerraCorp's Director of Sales is reviewing a report highlighting sales revenues over the past several years by division (See Figure 32). She decides that it would be interesting to view revenues over these periods by sales office within the sales organization.

5

To generate this report, she simply moves the cursor over the "Sales Office" folder (circled on Figure 32), then drags and drops it on the "Divisions" column (circled on Figure 33).

This single step presents the Director with a new report which represents sales revenues
10   over time by sales office within the Germany Sales Organization (identified by arrow in Figure34).

This analysis can be taken one step further by dragging and dropping the materials file (circle on Figure 35) to the nested row position in the report,(identified by the thick vertical
15   line within the circle on Figure 36).

The result is a new report highlighting how revenues are distributed by material groups across sales offices within the German sales organization (See Figure 37).

20   Our Director has demonstrated that with three clicks, she was able to view three reports, each of which offer valuable sales related information...keeping in mind that each of these reports are only clicks away from more varied and valuable analysis.

25   Accounts Receivable Analysis

The Accounts Receivable Analysis Functional Area (See Figure 24) includes the following Areas of Analysis:
          Accounts Receivable Functional Performance
30   Customer Credit Scorecard
          Quality of Accounts Receivable
          Corporate Self-Appraisal

31

Accounts Receivable Cash In-flow

Organizational Effectiveness

The primary function of the Accounts Receivable organization is to ensure the full and

5   timely collection of credit sales from the customer base. The BPM System for Accounts

Receivable provides the level of analysis required to successfully:

        - ensure timely account payments and accelerate account receivables cash inflow

        - effectively management credit and collections policies which promote sales and

maintain reliable credit accounts

10   - contribute in reducing operating costs and overall cost to serve customers

        - improve the accounts receivable process and management

        - support related corporate functions - sales and marketing, finance and control,

treasury

        - improving customer relations through the use of full information, comprehensive

15   analysis and clear communication

BPM FOR ACCOUNTS RECEIVABLE ANALYSIS

20   Companies need the right information...insight...intelligence. They need to spot important

trends, investigate cause and effect relationships, and monitor key performance indicators...

and move quickly to implement solutions that hit the mark. They need the power to analyze

performance, leverage financial assets, and put resources where they're required most.

25   BPM for Accounts Receivable Analysis turns raw Accounts Receivable (A/R) sub-ledger

transaction level data into a corporate asset. This application restructures A/R data into key

measurable facts used for strategic planning, program management and execution, and A/R

performance monitoring and reporting. Companies can select from a host of key

performance metrics and decision-ready reports that enable them to continuously analyze

30   the effectiveness of their A/R function, performance of existing resources, and fully

understand the existing customer base.

32

Thriving in any dynamic industry means embracing e-business and using web enabled technology to create, manage, and deliver analytical information. These are some of the business-critical activities that can be accomplished quickly with BPM for Accounts Receivable Analysis:

5
- Monitor A/R effectiveness and improve collection efficiency of credit accounts
- Determine potential accounts shifts to high risk positions
- Profile customer credit performance
- Present overview of A/R accounts for the purpose of factoring and financing
- Evaluate functional transaction volumes and the impact on A/R performance
10
- Assess analyst performance as it relates to account responsibility
- Analyze cash inflow projections for use in cash flow planning

THE CUSTOMER RELATIONSHIP MANAGEMENT PROCESS

15

Within the increasingly competitive corporate marketplace, the "loyal customer" is more important than ever. Today, customers possess unprecedented power in their buying relationships, with the opportunity to select from more options, from around the world, and to the power to act faster.

20

Industry has recognized that to deliver the level of service expected from the marketplace, it must take advantage of the information from across an organization to fully understand the customer experience. Companies need to understand the behavior, preferences, and satisfaction level of their customers. This explains the emergence of theories, processes and
25 technologies to support the area of Customer Relationship Management (CRM), and why the acceptance of these principles continues to grow.

Customer Relationship Management is defined as a corporate process aimed at growing market share by gaining and retaining high quality customers, improving loyalty through
30 increased satisfaction, and maximizing "share of wallet" through a complete 360 degree understanding of the existing customer base. CRM processes are driven by customer

information collected from across all customer touch points (including pre-sales and sales order processes, customer service and support), and from other external data sources.

Information from the Accounts Receivable function is a key component in understanding

5 customer behavior, value and satisfaction. All front office touch point activities which culminate in the sale of products or services on account, lead to the Accounts Receivable function - the effective and efficient collection of all credit sales. Although traditionally viewed as a support function, the nature of Accounts Receivable activities place it in a position where its performance can be the difference between satisfied or frustrated

10 customers, all of which directly impact the corporate cash inflow.

BPM for Accounts Receivable Analysis delivers information used to better understand the whole customer (360-degree view) - including A/R account history, customer payment trends, indicators identifying high risk accounts, cost to serve analysis, cash inflow forecasts

15 trends, and measures of customer satisfaction.

INFORMATION REQUIREMENTS WITHIN THE A/R ORGANIZATION

20 BPM for Accounts Receivable Analysis provides information for analysis and decision making at various management levels within a company's Accounts Receivable function. The availability of customer account activity information and analysis equips the organization with the details necessary to shorten the sales cycle while minimizing delinquent accounts and bad debts - ultimately improving corporate cash flow.

25

The primary function of the Accounts Receivable organization is to ensure the full and timely collection of credit sales from the customer base. However, to successfully achieve this goal, A/R must strive to:

    - Ensure timely account payments and accelerate account receivables cash inflow

30   - Effectively management credit and collections policies which promote sales and maintain reliable credit accounts

    - Contribute in reducing operating costs and overall cost to serve customers

34

- Improve the accounts receivable process and management

- Support related corporate functions - sales and marketing, finance and control, treasury

- Improving customer relations through the use of full information, comprehensive analysis and clear communication

These efforts require that managers within the Accounts Receivable function have a keen understanding of "how we have done and where are we going"...that begins with an analysis of the information being captured in the Accounts Receivable process, using industry best practices.

Managers need to know:

- if the organization is meeting it's objectives for customer collections;

- customer credit profiles - which customers are paying on time, and which are not;

- what is the expected cash inflow - how much cash do we expect in the future, and when;

- where the greatest risks to cash inflow exist; and

- how effectively the organization is performing with the given resources.

BPM for Accounts Receivable Analysis delivers information to answer these core questions, with the depth of analysis built on industry best practices needed by managers at all levels of the organization, including:

- High-level executive and senior managers who conduct strategic analysis on how the company is being paid, managing functional performance and determining cash inflow for planning; and

- Accounts Receivable analysts responsible for managing and monitoring customer accounts and payment trends, handling adjustments, and intercepting potential collection risks.

Figure 38 outlines the high-level activities within an organization's Accounts Receivable function. It is worth noting that while organizational structures vary between companies

35

(i.e., differences specific to company size, industries, culture), thequestions addressed by the BPM for Accounts Receivable have been proven to apply across industry.

5   BPM FOR ACCOUNTS RECEIVABLE ANALYSIS: AREAS OF ANALYSIS

BPM Accounts Receivable Analysis is focussed on providing managers with information used to understand how well their organization is doing and why. The analyses that have been packaged are designed to provides managers with what they need to assess:

10   - how effectively Accounts Receivable has been in meeting its functional objectives, and why these performance levels are being achieved;

- how effectively resources are being used to achieve these results; and

- how key information supports cross-functional analysis as it relates the customer and financial analysis.

15

BPM for Accounts Receivable Analysis areas of analysis include:

- Accounts Receivable Functional Performance

- Customer Credit Scorecard

- Quality of Accounts Receivable

20   - Corporate Self-Appraisal

- Accounts Receivable Organizational Effectiveness

- Accounts Receivable Cash Inflow Forecasts

ACCOUNTS RECEIVABLE FUNCTIONAL PERFORMANCE

25

A company looks to its Accounts Receivable team to ensure that the organization is being paid what is due, when it is due. Any deviations from this expectation must be assessed and addressed by analysts and managers as required. To measure how effectively the function is performing, key performance indicators are monitored over time, across organizations,

30   and compared to industry standards.

BPM for Accounts Receivable Analysis delivers metrics and analysis to measure the functional performance of the Accounts Receivable function. The information provided will answer questions such as:

- How quickly is the organization collecting? What is the average collection period?
5   How does this relate to particular analysts?

      - What is the Accounts Receivable Turnover? Is it within target?

      - What is the Days of Sales Outstanding (DSO)? How has this changed over time?

      - What money is due this period? What percentage of dollars is past due?

      - What percent of the money due is moving to high risk?

10   - What percentages of accounts are not meeting terms? What is the value of their overdue accounts?

      - How has bad debt evolved over time?

      - How has the A/R function evolved over time in its ability to collect on time and minimize bad debt?

15

CUSTOMER CREDIT SCORECARD

A fundamental requirement for managers and analysts of the Accounts Receivable function is to understand the current credit position of the customer base, as well as profiling
20   customers and customer groups - not only where they are today, but how this has changed over time.

BPM for Accounts Receivable Analysis provides information about a customer or a group of customers' payment history, as well as metrics to measure the effectiveness of the A/R
25   function. The organization needs to understand how customers have been paying, what is the cost to serve them, and which ones present risk of non-payment in any given period. This type of information not only gives additional insight to other functions within the organization, but it also serves as a basis for risk management, and credit analysis.

30   A customer credit scorecard will allow managers and analysts to answer questions such as:

      - What is the current status of a customer's account? What are the transactions that define the current status (including invoices, payments and adjustments)?

37

- What is the customer's aging schedule?

- What has the payment trend been for customers? What is the customer's average days to pay? Weighted average days to pay?

- Does the customer take advantage of discounts offered? What percent of discounts offered are taken? What is the value?

- What is the cost to serve customers?

- How has a customer's purchases, activity and credit evolved over time?

- Which customers are problematic and why?

- What is the profile of the customer base?

- What is the profitability of a customer to our organization?

- How does the customer's performance and credit rank against others?

QUALITY OF ACCOUNTS RECEIVABLE

In maximizing cash flow, many organizations sell or borrow against their current Accounts Receivable balances. In using this vehicle, financial partners require the organization to present a profile of the quality of the accounts receivable against which financing is being requested. This includes the aging schedule of the accounts, as well as any other information required to display the low risk nature of the credit that is being considered for financing.

BPM for Accounts Receivables Analysis provides information on current account balances from an organizational viewpoint down to customer transaction detail. A/R managers will have information to support financing proposals and the level of detail appropriate for the various requirements of the financing institutions. This includes customer information on bad debt, value of funds past due, and the average collection period.

CORPORATE SELF-APPRAISAL

The Account Receivables function detects problems in the supply chain and customer service as they manifest themselves in the form of delayed payments As a company

38

assesses the service it receives from its vendors, it must also measure itself against the same standards.

Problems in collections may be due to a variety of issues - stemming from supply chain fulfillment to the billing process. Accounts Receivable, through the processing of reason

5 codes and adjustment analysis can provide meaningful information to determine if the organization has been effective in satisfying the promises made to its customers. Have customers delayed or adjusted payments due to:

- Poor product quality
- Late delivery

10 - Inaccurate delivery quantities
- Errors in pricing and billing
- Delivery of the wrong product
- Unclear billing practices

15 A proactive approach to assessing these factors and improving process to minimize discrepancies or delays in payment will enhance the customer experience and satisfaction, contribute to customer loyalty, and eliminate non-value adding costs due to inefficiencies.

BPM for Accounts Receivable Analysis provides detailed analysis of adjustments and their

20 reasons. The analysis delivered provides managers with the information required to determine:

- What is the value of adjustments received?
- What are the reasons for adjustments? What are the related values and frequency? How are they evolving?

25 - Where are the adjustments emerging? Which customers? Which regions? Which analysts?
- Have adjustment levels improved in response to corporate action in the form of changes to process or policies within the supply chain, fulfillment process and billing?

30 ACCOUNTS RECEIVABLE ORGANIZATIONAL EFFECTIVENESS

As any departmental function within an organization, Accounts Receivable is expected to manage its account base as efficiently as possible -this relates both to the best use of resources and budget.

Inefficiencies in the A/R process result in increased cost to service customers, errors due to
5   poorly distributed workload, and customer dissatisfaction from transacting through poorly designed processes. An understanding of the Accounts Receivabks function provides a view of where non-value-adding steps can be eliminated, and how the cash operating cycle time can be reduced.

10 BPM for Accounts Receivable Analysis delivers robust analysis of how A/R resources are performing in working to achieve functional objectives. Managers will have the information to answer questions that include:

        - How has account distribution across analysts changed as business has increased?
How does this distribution compare based on total number of accounts, and total dollars
15 managed?

        - How do the average days to collect from accounts compare across analysts? Does an increase indicate overloaded resources?

        - How have transaction volumes changed with an evolving customer base? How has the ratio of new to open transactions changed over time?

20   - How has the total number of transactions being processed by the A/R department changed over time? Do increases in processed transaction per employee impact A/R key performance indicators?

ACCOUNTS RECEIVABLE CASH INFLOW FORECASTS

25

Cash management planning is an important function of the Treasury organization -working to ensure that there is sufficient cash available in the future to cover accounts payables for purchases, expenses, financing and operations. Accounts Receivables posæsses key information that can provide forecasts of cash inflow based on existing credit items and
30 their related terms of payment.

40

BPM for Accounts Receivable Analysis provides forecasts of cash inflows based on three
scenarios:

    - Expected cash inflow based on the assumption that no accounts take advantage of
discount payment terms

    - Expected cash inflow based on the assumption that all accounts take advantage of
discount payment terms

    - Expected cash inflow based on the expected days to pay for each account based on
an analysis of their payment patterns to date

These cash inflow forecasts provide the Treasury function with the information they need to
estimate the cash inflow from the customer base, which when compared with cash outflow
analysis delivered in BPM for Accounts Payable Analysis provides valuable insight for cash
flow planning.

THE ACCOUNTS RECEIVABLE PROCESS IS CROSS FUNCTIONAL

As has been illustrated, BPM for Accounts Receivable Analysis delivers information used
by management to effectively analyze the performance of an organization's Accounts
Receivable function. However, the A/R process also provides important information used
in analysis by other functions which include:

    Sales and Billing:

    As the final phase of the sales process (sales to cash), Accounts Receivable provides
valuable analysis alongside the details form the sales and billing processes. The analysis
allows managers to better understand customer and customer group payments patterns and
credit worthiness as it relates to sales history.

    General Ledger:

    As a sub-ledger of the General Ledger, A/R provides details used to explain changes
in General Ledger A/R line items.

    Treasury:

41

The combination of Accounts Receivable cash inflow projections and Accounts Payable cash outflow projections provide treasury with the information needed to plan cash flow.

5   The use of conforming dimensions (ex. customer, chart of accounts, organization, etc.) ensure that while the reporting within each functional area as delivered by the BPM system (including Sales Analysis, Accounts Receivable Analysis, General Ledger Analysis, Accounts Payable Analysis) is robust, they also provide the ability to report across applications. The design for integration across the BPM system allows for a view of
10   information across functions - hence ensuring that Accounts Receivable information is available to complete the analysis required in other functions within the organization.

MULTI-DIMENSIONAL ANALYSIS

15

The questions listed above represent a sampling of the type of valuable information available in BPM for Accounts Receivable Analysis, which A/R management professionals require to effectively manage their organizations and responsibilities.

20   While the questions address the demand for information regarding the organization's ability to meet collection expectations, customer profiling, and analyst performance, it must be noted that the analysis that is possible goes well beyond this. The multi-dimensional nature of BPM for Accounts Receivable Analysis, along with the power of Cognos PowerPlay and Impromptu offers robust analysis around any single question - further expanding the
25   knowledge gained from the data extracted from the source ERP system.

General Ledger Analysis

30   The General Ledger Analysis Functional Area (See Figure 25) includes the following Areas of Analysis:
            Financial Performance Reporting and Analysis

42

Budget Analysis

Key Financial Ratio Reporting and Analysis

Operational Reporting Analysis

5   The Financial Accounting function plays a role in the preparation and analysis of financial
transactions which serve as barometer of their company's financial health. This information
is used in strategic planning, program management and execution, and financial
performance monitoring and reporting.

10   BPM for General Ledger provides analysis used to:

- reduce period-end close processes, accelerate financial reporting and distribution
cycles

- allow financial professionals to analyze business performance, not merely collect
and report data

15   - distribute financial information applicable to department managers for analysis and
planning

- trace and grasp shifts in expenses and revenues over time

- compare performance: actual versus plan

- easily determine whether and how much organizations are contributing to profit or

20   revenue

- pinpoint and real issues or opportunities that drive profitability

BPM FOR GENERAL LEDGER ANALYSIS

25

FINANCIAL ACCOUNTING BUSINESS DRIVERS

Companies need the right information...insight...intelligence. They need to spot important
trends, investigate cause and effect relationships, and monitor key performance indicators...

30   and move quickly to implement solutions that hit the mark. They need the power to analyze
performance, leverage financial assets, and put resources where they're required most.

43

BPM for General Ledger Analysis turns raw GL transaction level data into a corporate asset. The BPM for General Ledger e-Application restructures GL data into the key measurable facts needed for strategic planning, program management and execution, and financial performance monitoring and reporting. Companies can select from a host of key
5 performance metrics and decision-ready reports that enable them to continuously analyze their company's financial health.

Thriving in any dynamic industry means embracing e-business and using web enabled technology to create, manage, and deliver analytical information. These are some of the
10 business-critical activities that can be accomplish quickly with BPM General Ledger Analysis:

  - reduce period-end close processes

  - accelerate financial reporting and distribution cycles, freeing up time for financial analysis to improve business performance

15   - allow financial professionals to analyze business performance, not merely collect and report data

  - give department managers access to their financial information so they can assess changes and impacts and align their activities with corporate objectives

  - equip managers to produce up-to-date reports of key financial ratios

20   - trace and grasp shifts in expenses and revenues over time

  - compare actual performance versus plan

  - easily determine whether and how much organizations are contributing to profit or revenue

  - evaluate the effect of currency rate fluctuations on financial performance

25   - pinpoint the real issues or opportunities that drive profitability

FINANCIAL INFORMATION REQUIREMENTS

30 Finance Organizations have two main functions - Financial Accounting and Management Accounting and Control. Financial Accounting is performed for external consumption and is used in reporting financial results on a periodic basis to shareholders, creditors, and

44

government entities. On the other hand, Management Accounting is intended for internal consumption and is used in planning and operating a company by managers and employees.

The source of data for the BPM for General Ledger Analysis e-Application is the GL.

5   Accounting principles form the basis of the standards, rules, and definitions of financial statements used for reporting and analyzing a corporation's financial performance. The BPM Financial Analysis e-Application meets these standards while being flexible enough to adapt to global variations.

10   BPM for General Ledger Analysis provides the information necessary for analysis and decision making at various management levels: from executives to financial management. One objective of the finance function is to plan, and monitor strategies for maximizing the return on investment for corporate stakeholders (i.e. shareholders). The financial plan and strategy should be in alignment with the corporate mission and should return the greatest

15   value to its stakeholders. This requires an understanding of how effective an organization has been in generating revenue, utilizing its cash flow, and leveraging its assets while minimizing costs.

In their efforts to achieve these objectives, financial executives require a keen

20   understanding of "how things are going" which begins with an analysis of the information being captured in the GL. The finance department needs answers to questions on:
            - how each part of the corporation is contributing to overall revenue and profit margin
            - how effectively the organization is leveraging its assets, liabilities, and cash flow

25   - how effective the corporation has been at returning value to its shareholders

As the entity responsible for executing the corporation's business plan, Management must be able to monitor financial performance within its areas of responsibility. To do this effectively, management must have access to detailed information on revenue and expenses,

30   assets and liabilities. Given access to the right information, Management can find answers to questions such as:
            - how each cost/profit center is performing versus the actual budget/plan

45

- what is driving profit

- what is driving expense

- what are the key financial trends over time, are they positive or negative, and at
what rate are they changing.

BPM for General Ledger Analysis delivers information to answer these questions, with the
depth and breadth necessary to meet the needs of managers at all levels of the organization,
including:

- high-level executive and senior management who develop the corporate business
plan, perform strategic analysis, examine how corporate strategies have impacted
performance, and monitor the progress of the corporation toward meeting its financial
performance objectives

- financial analysts who are concerned with short term and long term financial
planning, reporting and analysis

- executives and management who are responsible for executing the corporation's
business plan

Figure 39 outlines the high-level activities within an organization's finance functions. It is
worth noting that while organizational structures can vary between companies (i.e.
differences specific to company size, industries) the questions addressed by the General
Ledger Analysis e-Application are, for the most part, cross-industry in nature.

BPM for Financial Analysis - AREAS OF ANALYSIS

No two companies are alike in how they structure the Chart of Accounts in their General
Ledger System. The BPM for Financial Analysis e-Application addresses this fact by
providing automated configuration utilities to capture the complete structure of the General
Ledger (GL) - minimizing the management effort. Much of this information is determined
automatically during installation but certain GL related data structures cannot be
automatically deciphered. For instance, an "account name" may have three, four, or more
components encoded in it such as Legal Entity, Management Entity, Account Group,

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Account Type, Account, and GL Transaction number. The BPM for General Ledger
Analysis e-Application will capture this account hierarchy, allow you to specify the
meaning of each part of the account key by account type (i.e. assets, liabilities or equity),
and incorporate the specification into its data structure. This permits a user to "drill down"
5   into the set of all GL transactions and perform analysis at each level, select GL transactions
by type or owner, or aggregate and summarize GL transactions in any valid combination.
Once installation is complete, no additional work is necessary to ensure your Chart of
Accounts data structure can be easily navigated for detailed analysis and reporting.

10   BPM for General Ledger Analysis addresses key areas of financial analysis aimed at
assessing the financial health of the company. These areas include:
          - Financial Performance Reporting and Analysis
          - Budget Analysis
          - Operational Reporting and Analysis
15   - Analysis by Legal Entity
               - Analysis of Management Entity
               - Trial Balance
               - GL
          - Key Financial Ratio Analysis

20

Financial Performance Reporting and Analysis

At a minimum, all companies must produce financial statements at least once each fiscal
25   year if only for tax purposes. A public corporation, however, must publish its financial
statements quarterly to meet legal commitments. These financial statements provide
valuable insight into the performance of the organization. This is especially true when the
information is presented in a format that presents the changes in financial performance over
time. With the BPM for General Ledger Analysis e-Application, complete detailed
30   Financial Statements can be produced "on-demand" virtually automating a typically
complex and time-consuming process.

This built-in flexibility is also extended to the analysis and reporting environment of the BPM for General Ledger Analysis e-Application. Information in the e-Application is structured for ease of access and query performance. The pre-packaged financial reports and multidimensional cubes are easily modified to suit specific requirements. And the format and content of each report can be quickly changed to suit the needs of the user.

Income Statement Analysis

The income statement is a summary of revenue, expenses, and income for a given period of time. The BPM for General Ledger Analysis e-Application provides a set of pre-configured variations of the Income Statement including:

- 'Period over period' which provides a comparison of change over time. The time periods can be selected by the user (i.e. month, quarter, year, fiscal year, year-to-date). This permits the user to analyze changes in revenue and expenses based on a point in time, period, or seasonality.

- 'Trends over time' presents the Income Statement by month. This shows monthly activity from the beginning of the year to the current period.

- 'Percentage of total revenue' shows an income statement in which each row is calculated as a percentage of total revenue. The user may drill down on each group of accounts to view detailed percentages of total revenue.

- 'Detailed Income Statement' shows an income statement grouped and sorted to the lowest level of detail in the account hierarchy.

- 'Income Statement variance from Budget' (expense and revenue forecast) presents a high-level income statement that compares budget against actual results. Calculations show variance and percent variance of actual results to budget.

Balance Sheet Analysis

The balance sheet represents the accounting equation-Assets = Liabilities + Owners Equity-at a point in time. In a balance sheet an analyst is looking for relative changes which are useful in understanding how the business is performing. The BPM for General Ledger Analysis e-Application presents the balance sheet in several different formats:

48

- 'Balance Sheet Time Comparisons' shows a detailed time period comparison. It allows the comparison of the current month, quarter, and year-to-date with the same periods in the previous fiscal year.

- 'Balance Sheet Time Trends' shows a detailed time period comparison of the balance sheet by month. Columns show monthly balances from the beginning of the year to the current period.

- 'Percentage of Total' presents a balance sheet statement in which each row is calculated as a percentage of the total against the group totals (assets, liabilities). This view supports drill down on each group of accounts to view detailed percentages of the totals.

- 'Detailed Balance Sheet' shows a balance sheet with line items grouped and sorted to the lowest level of detail in the account hierarchy.

- 'Balance Sheet budget variances' compares budget against actual results at a high level. Calculations include variance amount and variance as a percentage of actual to budget. Further analysis can be performed over time, business area, company and GL accounts.

Budget Analysis

The corporate planning function produces a set of projected revenues and expenses within each management entity. These projections become the financial objectives or budget by which each manager can report against. Monitoring actual expenses versus budget or actual revenues versus budgeted revenues is therefore a critical and continuous activity. The BPM for General Ledger Analysis e-Application presents the "budget" information alongside actuals in a variety of reports and multidimensional cubes so the manager can determine:

- 'What is Driving Income Statement Variances?' This report shows an income statement with a variance measure to reveal business segments that are having unexpected results.

- 'Variance Report - Income Statement' shows a view of the income statement expense categories. Calculations show variance and percent variance of actual results to budget, and variances are ranked to reveal over-budget and under-budget accounts.

49

- 'What is driving Balance Sheet Variances?' This report reveals business segments that are having unexpected results based on a variance measure.

- 'Variance Report - Balance Sheet' shows a detailed view of balance sheet expense categories. Calculations show variance and percent variance of actual results to budget, and variance are ranked to reveal over-budget and under-budget accounts.

Operational Reporting and Analysis

Analysis by Legal Entity

A corporation may consist of a number of companies or "legal entities" with each company having its own GL and chart of accounts. The BPM for General Ledger Analysis e-Application provides a convenient set of reports all filtered by legal entity. This provides management with a set of financial statements focussed on a specific company thereby facilitating analysis:

- 'Income Statement Trends' shows a high-level income statement by company. Columns compare time periods, rows show values for each statement group.

- 'Balance Sheet Trends' shows a high level balance sheet grouped by company. Columns compare time periods. Rows show values for each statement group.

- 'Cash Flow Trends' presents a detailed cash flow statement grouped by company. Columns compare time periods. Rows show values for each statement group.

- 'Ratio Trends' displays a detailed analysis of key performance ratios grouped by company. Columns compare time periods. Rows show percentages or numeric values depending on the specific indicator.

Analysis by Management Entity

A management entity is made up of a set of GL Accounts. GL transactions in an account may belong to different management entities. Executive management often needs to compare the performance between entities in order to establish strategies and priorities:

- 'Profit Center Comparisons' presents a high-level income statement and gives a separate set of percentages for each profit center group. Columns compare time periods and rows show percentages of totals for each profit center group.

50

- 'Profit Center Rankings' show all lowest level categories for the profit center hierarchy and ranks profit centers for all fiscal periods by profit amount.

- 'Cost Comparisons' gives a separate set of percentages for each cost center group presented in a high-level income statement. Columns compare time periods, and rows show percentages of totals for each cost center group.

- 'Cost Center Rankings' show all lowest level categories of the cost center hierarchy. Cost centers are ranked by expense totals for a selected time period.

- 'Company Comparisons' show a high level income statement where each company is a column in the report and rows represent account groups.

- 'Company Rankings' ranks all companies, at the lowest level of categories of the company hierarchy, by amount of profit for a selected time period.

A manager of a profit or cost center must be able to view only the GL transactions that are applicable to their management entity. The BPM for General Ledger Analysis e-Application provides a set of reports and analysis cubes filtered in that way:

- 'Cost Center Analysis' shows a detailed income statement that includes account groups, detailed accounts, debits, credits, final balance

- 'Account Analysis' displays a list of all transactions for the accounting period for a particular account. Columns include debit, credit, final balance

Trial Balance

One of the most time consuming processes performed by the financial organization is that of the "period end close". The BPM for General Ledger Analysis e-Application can significantly reduce this time by providing easy access to detailed transaction information in a trial balance format. The 'Trial Balance' shows a list of all accounts sorted by account number including starting balance, debits, credits, and final balance. This report can be generated quickly and provides full drill down to the transaction level detail.

GL

'General Ledger' displays a list of all detailed transactions for the accounting period for each account as selected in initial prompt filters such as document/transaction number. The GL report presents transaction description, credit, debit, and final balance information.

Key Financial Ratios Analysis

5 The financial manager's job can be broken down into a series of broadly defined topics, including capital budgeting, dividend policy, stock issue procedures, debt policy, and leasing. But in the end the financial manager has to consider the combined effects of these decisions on the firm as a whole. The BPM for General Ledger Analysis e-Application allows the finance department to use financial data to analyze a firm's past performance and

10 assess its current financial standing. For example, being able to quickly check whether the company's financial performance is in the ballpark of standard practice.

Understanding the past is a necessary prelude to contemplating the future. Financial Managers use long-term financial plans to establish concrete goals and to anticipate

15 surprises. Short-term planning, where the focus is on ensuring that the firm has enough cash to pay its bills and puts any spare cash to good use is also a critical practice. The BPM for General Ledger Analysis e-Application provides information for understanding the past to better plan for the future.

20 The time-honored method of analyzing performance is financial ratio analysis. We have all heard stories of financial wizards that in minutes can take a company's accounts apart and find its innermost secrets in financial ratios. Financial ratios are a convenient way to summarize large quantities of financial data and to compare the firms' performance. These ratios fall into three groups: leverage ratios, liquidity ratios, and profitability or efficiency

25 ratios. The BPM for General Ledger Analysis e-Application automatically calculates and presents the most common measures in each group.

   - Leverage Ratios including Debt to Asset and Times Interest Earned

   - Liquidity Ratios including Current, Quick (or Acid Test), Fixed Asset Turnover, Total Asset Turnover

30   - Profitability or Efficiency Ratios including Profit Margin, Inventory Turnover, Return on Assets, Return on Equity

52

'Ratios Analysis' displays a time period comparison of key indicators that gives an overview of business performance. The analysis compares a period of time with the same period in the previous fiscal year. As well, the analysis compares the ratios calculated from actual financial data versus budgeted or planned:

5   - Current Ratio / Current Ratio Budget

- Quick Ratio / Quick Ratio Budget

- Inventory Turnover / Inventory Turnover Budget

- Fixed Asset Turnover / Fixed Asset Turnover Budget

- Total Asset Turnover / Total Asset Turnover Budget

10   - Debt to Asset / Debt Asset Budget

- Time Interest Earned / Time Interest Earned Budget

- Profit Margin / Profit Margin Budget

- Basic Earning Ratio / Basic Earning Ratio Budget

- Return on Assets / Return on Assets Budget

15   - Return on Equity / Return on Equity Budget

THE POWER OF MULTI-DIMENSIONAL ANALYSIS

20   The analysis areas listed above represent a sampling of the type of valuable information available in the BPM for General Ledger Analysis. While the analyses address the demand for information regarding the GL, it must be noted that the analysis that is possible goes well beyond. The multi-dimensional nature of the BPM for General Ledger Analysis data mart, along with the power of Cognos PowerPlay and Impromptu offers robust analysis

25   around any single question - further expanding the knowledge gained from the data extracted from the source ERP system.

The key financial ratios described above may be calculated as follows:

30   Coverage or Leverage Ratios
Leverage Ratios summarize the firm's financial leverage.

53

Debt to Asset Ratio: Financial leverage is usually measured by the ratio of long-term debt to total long-term capital:

Debt ratio = $\dfrac{\text{long-term debt} + \text{value of leases}}{\text{Long-term debt} + \text{value of leases} + \text{shareholders' equity}}$

Times Interest Earned: Another measure of financial leverage is the extent to which interest is covered by earnings before interest and taxes (EBIT) plus depreciation.

Times interest earned = $\dfrac{\text{EBIT} + \text{depreciation}}{\text{Interest}}$

Liquidity Ratios

Liquidity Ratios summarize the ability of a company to repay debt.

Current Ratio: (Also referred to as the Working Capital Ratio) Current assets are those assets that the company expects to turn into cash in the near future; current liabilities are liabilities that it expects to meet in the near future:

Current ratio = $\dfrac{\text{current assets}}{\text{current liabilities}}$

Quick (or Acid-Test) Ratio: Some assets are closer to cash than others and it may make sense to not include inventories and prepaids (this is a stricter measure of Working Capital):

Quick ratio = $\dfrac{\text{Cash, marketable securities and receivables}}{\text{current liabilities}}$

Asset Turnover: Instead of looking at a firm's liquid assets relative to its current Liabilities it is useful to measure net sales relative to the firm's average total assets.

Asset Turnover = $\dfrac{\text{Net sales}}{\text{average total assets}}$

Total Asset Turnover: A variation of the Asset Turnover is to include Inventory.

Total Asset Turnover = $\dfrac{\text{current assets}}{\text{average daily expenditures from operations}}$

54

Profitability and Activity Ratios

Financial analysts employ Profitability Ratios to judge how efficiently companies are

5   using their assets.

Profit Margin : To know what proportion of sales finds its way into profits, you look at the

profit margin

Profit Margin =   Net Income

10   Net sales

Inventory Turnover: This is the rate at which companies turn over their inventories.

Inventory Turnover =   cost of goods sold

                            average inventory

15

Return on Assets: A common measure of performance is the ratio of income to toal assets.

Return on total assets =   EBIT - taxes

                                average total assets

20   Return on Equity: Another measure focuses on the return on the firm's equity:

Return on equity =   Net income minus preferred dividends

                      average common shareholders' equity

25   Accounts Payable Analysis

The Accounts Payable Analysis Functional Area (See Figure 26) includes the following

Areas of Analysis:

                Accounts Payable Vendor Profile

30   Accounts Payable Functional Performance

                Accounts Payable Cash Outflow Forecast

                Accounts Payable Organizational Effectiveness

55

The Accounts Payable (A/P) function is tasked with paying outstanding debt to vendors, employees and other parties to which the company owes money. A/Ps role is to ensure that the debts are paid on time (whether or not discounts are taken), but no sooner than

5   necessary. The ultimate goal is to maximize cashflow while supporting positive relationships with vendors, and other creditors.

BPM for Accounts Payable Analysis delivers information for A/P to:
- ensure timely account payment and optimize Accounts Payables cash outflow
10   - support strong vendor relations
- reduce operating costs
- improve the accounts payable process and management
- support related functions - procurement and inventory, finance (GL) and control

15   BPM FOR ACCOUNTS PAYBLE ANALYSIS

Companies need the right information...insight...intelligence. They need to spot important trends, investigate cause and effect relationships, and monitor key performance indicators... and move quickly to implement solutions that hit the mark. They need the power to analyze

20   performance, leverage financial assets, and put resources where they're required most. BPM for Accounts Payable Analysis turns raw Accounts Payable (A/P) sub-ledger transaction level data into a corporate asset. This application restructures A/P data into the measurable facts used for strategic planning, program management and execution, and A/P performance monitoring and reporting. Companies can select from a host of key

25   performance metrics and decision-ready reports that enable them to continuously analyze the effectiveness of their A/P function, performance of existing resources, and fully understand the existing vendor base.

Thriving in any dynamic industry means embracing e-business and using web-enabled

30   technology to create, manage, and deliver analytical information. These are some of the business-critical activities that can be accomplished quickly with BPM for Accounts Payable Analysis:

56

- Effective management of the Accounts Payable function through close monitoring for A/P effectiveness

Tight cash outflow management and analysis to enable projections for use in cash flow planning

5   - Present overview of A/P accounts for the purpose of evaluating the relationship with vendors

- Evaluate functional transaction volumes and the impact on A/P performance

- Assess analyst performance as it relates to accounts that he manages

- Vendor profile performance.

10

INFORMATION REQUIREMENTS WITHIN THE A/P ORGANIZATION

Accounts Payable organizations need certain essential information to be able to perform

15   sound analysis for key decision-making. BPM for Accounts Payable offers A/P organizations a set of key performance indicators (KPIs) along with many vital reports that support various management levels within your company. The BPM for A/P e-Application enables the A/P organization to perform its functions and duties with tighter control over the cash outflow, better vendor relationship management, and more efficiently.

20

One goal or aim of the Accounts payable organization is to ensure all vendors are paid the full and the right amount in the "right" time taking into consider both the vendor and the company's perspectives. To achieve this goal A/P organizations must:

- Manage cash outflow tightly, while balancing between best interests of the

25   company versus the relationship with the vendor

- Improve the accounts payable process and management

- Improve the relationship with Vendors in general and from the Accounts payable through full information and comprehensive analysis

- Support related corporate functions: Inventory, Procurement, Treasury and

30   Controlling

- Effectively manage the payment process with the minimum rate of errors

57

Managers within the Accounts Payable function need to have a detailed understanding of A/P organizational performance. They must have access to information that provides answers to questions on throughput, accuracy, timeliness and efficiency. A/P Managers need to know:

5   - If the A/P organization is meeting it's obligations toward its vendors by paying them the right amount

- Vendor profiles - which vendor's invoices are problematic, and which are not

- What is the expected cash outflow - how much cash do we expect to pay out in the future, and when do we have to pay it?

10   - How effectively is the organization performing with the given resources? What is the correlation of these resources to error rate?

BPM for Accounts Payable Analysis delivers information to answer these questions, with the depth of analysis built on industry best practices needed by managers at all levels of the

15   organization, including:

- High-level executive and senior managers who conduct strategic analysis on how the company is paying vendors, managing functional performance and determining cash outflow for planning

- Accounts Payable analysts responsible for managing and monitoring vendors

20   accounts and payment trends, and handling adjustments and making sure to execute the payment policies determined by the company.

Figure 40 outlines the high-level activities within an organization's Accounts Payable function. It is worth noting that while organizational structures vary between companies

25   (i.e., differences specific to company size, industries, culture), the questions addressed by the BPM for Accounts Receivable have been proven to apply across industry.

BPM FOR ACCOUNTS PAYABLE ANALYSIS: AREAS OF ANALYSIS

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In the BPM for Accounts Payable Analysis application, a great effort was put to cater to the A/P managers the information they need to understand how well their organization is doing

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and why. BPM for Account Payable put into its consideration the different types of reports
and analyses that an A/P manager would employ to need to evaluate:

 - how effectively Accounts Payable has been in meeting its functional objectives,
and why these performance levels are being achieved;

5   - how effectively resources are being used to achieve these results; and

 - how key information supports cross-functional analysis as it relates the vendor and
financial analysis.

BPM for Accounts Payable Analysis areas of analysis include:

10   - Accounts Payable Functional Performance

 - Accounts Payable Vendor Profile

 - Accounts Payable Organizational Effectiveness

 - Accounts Payable Cash Outflow Forecasts

15

ACCOUNTS PAYABLE FUNCTIONAL PERFORMANCE

The Accounts Payable team is the designated division of the company that undertake the
responsibility of ensuring that the organization is paying what is due, when it is due to its

20   vendors. Any deviations from this expectation must be assessed and addressed by analysts
and managers as required. To measure how effectively the function is performing, key
performance indicators are monitored over time, across organizations, and compared to
industry standards.

25   BPM for Accounts Payable Analysis delivers metrics and analysis measuring the functional
performance of the Accounts Payable function. The information provided will answer
questions such as:

 - What money is owed this period?   What percentage of dollars is past due?

 - How quickly is the organization paying? How does this relate to particular

30   analysts?

 - What percentages of accounts are not meeting terms? What is the value of overdue
accounts?

59

- How has the A/P function evolved over time in its ability to pay on time and utilize discounts available?

- What is the average number of transactions that are processed by the accounts payable department within a period? How has this changed overtime? How many adjustments took place?

- How has the A/P function evolved over time in its ability to pay on time and maximize discounts?

10 VENDOR PROFILING

Accounts payable provides information about payment history for a vendor or a group of vendor; this fact was well incorporated in the design of the A/P e-App. The organization needs to understand in general how vendors have been delivering and dealing with the organization. However A/P in specific needs to understand the financial aspect of the relation ship with the vendor. For example, what is the cost is to pay a certain vendor versus the rest, what is the trend of the terms the vendor is offering based on the volume of purchases and previous history, and which vendor has the highest number of inaccurate invoices and hence consume more than the average time to be paid. This type of information not only gives additional insight to other functions within the organization, but it also serves as a basis for vendor evaluation, and cash outflow forecasting.

A fundamental requirement for managers and analysts of the Accounts Payable function is to understand the current Vendor Information, as well as profiling vendor and vendor groups - not only where they are today, but how this has changed over time. Information about vendors is not merely a product of Accounts payable, but Procurement and Inventory organizations complete the whole picture about vendors. The 3-way check and vendor scorecard are two fundamental areas of analysis that depend on the vendor profiling from the A/P perspectives.

Sharing with vendors their profiles will improve the mutual communication and hence the relationship with vendors. Certain reports in A/P e-App will target this issue of sharing

60

knowledge between the corporate and the vendor aiming to more the vendor-customer relationship to partnerships.

A Vendor profile will allow managers and analysts to answer questions such as:

5   - What is the current balance for a vendor account? What are the transactions that define the current balance (including invoices, payments and adjustments)?

- Does the vendor offer the company discounts? What percent of discounts offered are taken? What is the dollar value?

- What is the cost to pay Vendors? (including errors, method of payments,

10   adjustments)

- Which vendors are problematic and why?

- What is the profile of the vendor base?

- How does the vendor rank against others? (trading volume, discounts offered, adjustments, prices and fluctuations associated, and cost to pay)

15

ACCOUNTS PAYABLE ORGANIZATIONAL EFFECTIVENESS

Accounts Payable, like any other any department within an organization, is expected to

20   manage its account base as efficiently as possible - this relates both to the best use of resources and budget.

Inefficiencies in the A/P process result in increased cost to pay vendors, errors due to poorly distributed workload, and vendor dissatisfaction from transacting through poorly designed

25   processes. An understanding of the Accounts Payable function provides a view of where non-value-adding steps can be eliminated and how to best utilize the cash available to pay the important bills first.

BPM for Accounts Payable Analysis delivers robust analysis of how A/P resources are

30   performing in working to achieve functional objectives. Managers will have the information to answer questions that include:

- How has account distribution across analysts changed as business has increased? How does this distribution compare based on total number of accounts, and total dollars managed?

- On average, how long does it take for a decision to be made on an invoice submitted for approval and payment?

- What was the total cost/savings for being in variance as related to payment terms?

- What is the average /Weighted average Days past due?

- What is the average AP payment period for a vendor? How does this compare across vendors? How has this changed over time?

- What proportion of $ value of open AP items in a period are attributed to the $ value of new transactions? How has this changed over time?

- How has the total number of transactions being processed by the A/P department changed over time? Do increases in processed transaction per employee impact A/P key performance indicators?

ACCOUNTS PAYABLE CASH OUTFLOW FORECASTS

Making sure to pay the due bills is a critical process for an organization to continue it business. Account Payables and Accounts Receivables have a significant role in providing the treasury department with the required information to manage the cash most effectively and carry the function of planning. A/R ensures that there is sufficient cash available in the future to cover accounts payables for purchases, expenses, financing and operations. Furthermore, Accounts Payable is responsible of providing the cash outflow forecast information to the treasury department. A/P provides key information that can provide forecasts of cash outflow based on existing invoices and their related terms of payment and the trends reflecting the discounts taken.

BPM for Accounts Payable Analysis provides powerful forecasts of cash outflows based on three scenarios:

- Expected cash outflow based on the assumption that no accounts take advantage of discount payment terms

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- Expected cash outflow based on the assumption that all accounts take advantage of discount payment terms

- Expected cash outflow based on the expected days to pay for each account based on an analysis of their utilized discount taking patterns to date

5

These cash outflow forecasts provide the Treasury function with the information they need to estimate the cash outflow required from the company, which when compared with cash inflow analysis delivered in BPM for Accounts Receivables Analysis provides valuable insight for cash flow planning which is indispensable to the treasury department.

10

THE ACCOUNTS PAYABLE PROCESS IS CROSS FUNCTIONAL

As has been illustrated, BPM for Accounts Payables Analysis delivers information used by management to effectively analyze the performance of an organization's Accounts Payable

15   function. However, the A/P process also provides important information used in analysis by other functions that include:

- Procurement

- General Ledger: As a sub-ledger of the General Ledger, A/P provides the details necessary to explain changes in General Ledger A/P line items.

20   - Treasury: The combination of Accounts Receivable cash inflow projections and Accounts Payable cash outflow projections provide treasury with the information needed to plan cash flow.

The use of conforming dimensions (ex. vendors, chart of accounts, organization, etc.)
25   ensure that while the reporting within each functional area as delivered by the BPM system (including Procurement, Accounts Payable Analysis, General Ledger Analysis, Accounts Receivable Analysis, Inventory Analysis, Sales Analysis) is robust, they also provide the ability to report across applications. The design for integration across the BPM system allows for a view of information across functions - hence ensuring that Accounts Payable
30   information is available to complete the analysis required in other functions within the organization.

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MULTI-DIMENSIONAL ANALYSIS

The questions listed above represent a sampling of the type of valuable information
available in BPM for Accounts Payable Analysis, which A/P management professionals
require to effectively manage their organizations and responsibilities.

While the questions address the demand for information regarding the organization's ability
to meet payment expectations, vendor profiling, and analyst performance, it must be noted
that the analysis that is possible goes well beyond this. The multi-dimensional nature of
BPM for Accounts Receivable Analysis, along with the power of Cognos PowerPlay and
Impromptu offers robust analysis around any single question - further expanding the
knowledge gained from the data extracted from the source ERP system.

Inventory Analysis

The Inventory Analysis Functional Area (See Figure 27) includes the following Areas of
Analysis:

Stock Overview and Valuation Analysis

Material Movement Activity Analysis

Demand Analysis

Material Reservations Analysis

Physical Inventory Analysis

Inventory Forecasts

One objective of the inventory management (IM) function are to ensure that there is
sufficient stock to meet the demand of both internal and external customers, manage the
cost of owning inventory, forecast and plan for stock levels, and to identify opportunities for
improved cashflow.

64

To accomplish these objectives, managers need the information and analysis capable of providing a clear understanding of the investment made in inventory. This includes in-depth analysis of where money is being invested, how often it is being turned, who is driving the demand, and for what items. This should be tied to analysis on the effectiveness of this investment in meeting the demand, with a view from both a corporate level as well as from individual plants and warehouses. BPM for Inventory Analysis delivers the key information required to analyze:

- organizational investment in inventory

- functional effectiveness in managing and forecasting requirements

- the movement of inventory through the organization

- the allocation of resources

- how effective the organization has been in satisfying the demand of internal and external customers

BPM FOR INVENTORY ANALYSIS

In the age of e-business and the World Wide Web, corporations are facing an unprecedented level of competition from around the globe, with their biggest competitors being only a click away. The disappearance of borders and contraction of time has given customers unprecedented power - and has redefined 'customer loyalty'. Gaining, sustaining and growing the existing customer base is key - and customer satisfaction must be delivered.

To remain competitive, organizations need to be positioned to give their customers "what they want, how they want it and when they want it". This requires an understanding of how the supply chain is geared to meet demand - with inventory managers faced with delivering while maintaining the optimal balance between supply and demand.

For Inventory Management to effectively address the issues of product availability and meeting internal and external demand, they need facts. They need to know what they have, where it is, how much is invested in stock, and how effective the company has been in meeting the demand.

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BPM for Inventory Analysis delivers value to managers by turning raw data into information required to take action. BPM for Inventory Analysis provides a host of key performance metrics and decision-ready reports that enable you to analyze forecast

5 accuracy, stock levels and valuations, stock fluctuations (e.g. minimum and maximum stock levels, stock outs), and key inventory analytics (e.g. ABC analysis, inventory turns, and stock coverage).

These are just some of the business-critical activities that you can accomplish quickly with

10 BPM for Inventory Analysis:

- Increase customer satisfaction through meeting demand

- Better understand the investment in inventory and identify opportunities to improve cashflow

- Improve forecasts and budgets

15 - Analyze warehouse performance, material classes, movements, forecasts, physical inventory, and more

INVENTORY MANAGEMENT, BUSINESS-TO-BUSINESS (B2B), and
C-COMMERCE

20

To be competitive in today's marketplace, organizations are realizing that they not only need to embrace the power of e-commerce, but they must look beyond to c-commerce (collaborative commerce). c-Commerce identifies the need to share information with our key partners and suppliers. It identifies the need for organizations to leverage the

25 experience and insight of their channels to better understand the supply chain - and gain and sustain competitive advantage.

Through the sharing of insightful information into the Inventory Management function - measures such as stock level fluctuation, consumption, and inventory movement (issues and

30 receipts), can return valuable input towards better understanding of how effectively product is moving through the organization process chain from supplier to the customer, while adding value along the way.

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This understanding will empower the inventory managers to better plan and forecast stock requirements, while identifying opportunities to minimize excess stock levels and eliminating the related carrying costs that can reach upwards of 30%.

5

BPM for Inventory Analysis, as part of the BPM system, enables the Inventory function to meet both functional and organizational goals, by sharing key inventory information such as:

- material consumption and inventory level trends across the organization for items
10   related to a specific vendor

- the distribution of specific materials or material groups across warehouses/ regions

- the number of returns to vendors of specific materials and how it relates to total inventory held on the item

- consignment stock of inventory on site from a vendor and information on how
15   consignment levels correspond to consumption

- other valuable information which will bring your company and your key partners and suppliers closer together and ultimately improve the supply chain

INFORMATION REQUIREMENTS WITHIN INVENTORY MANAGEMENT

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BPM for Inventory Analysis provides information for analysis and decision making at various management levels within a company's material management organization.

Some objectives of the inventory management function are to ensure that there is sufficient
25   stock to meet the demand of internal (MRO and manufacturing) and external customers, manage the cost of owning inventory, forecast and plan for stock levels, and to identify opportunities for improved cashflow.

To accomplish these objectives, managers need the information and analysis capable of
30   providing a clear understanding of the investment made in inventory. This includes in-depth analysis of where money is being invested, how often it is being turned, who is driving the demand, and for what items. This has to be tied to analysis on the effectiveness

67

of this investment in meeting the demand, with a view from both a corporate level as well as from individual plants and warehouses.

Managers need to understand how the combination of all these variables impact their ability
5   to meet the inventory policy and strategy - and ultimately how effective current plans and processes are in contributing to the corporate mission aimed at returning the greatest value to its stakeholders.

BPM for Inventory Analysis delivers robust in-depth reporting and analysis to answer the
10   questions that deal with:
- management of inventory
- inventory consumption and demand
- operational performance
- inventory control and forecast accuracy

15

BPM for Inventory Analysis delivers the information necessary to answer these questions, with the depth and breadth of content to meet the needs of managers at all levels of the organization, including:
- High-level executive and senior managers who conduct strategic analysis into the
20   investment in inventory, as well as how inventory strategies and forecasts have impacted cross-organizational performance
- Inventory managers who require tactical reporting and analysis targeted at understanding the effectiveness of plans, distribution of investment across material segments, plant and warehouse locations
25   - Operational managers who oversee reporting (ie. warehouse manager evaluation of inventory levels, values, turns and coverage for her specific location) and process effectiveness.

Figure 40 outlines the high-level activities within an organization's materials management
30   function. Inventory management and procurement work hand in glove and have both been represented in the diagram. It is worth noting that while organizational structures will vary between companies (i.e., differences specific to company size, industries, culture), the

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questions addressed by the BPM for Inventory Analysis are, for the most part, cross-industry in nature.

5   BPM INVENTORY ANALYSIS - AREAS OF ANALYSIS

BPM for Inventory Analysis offers inventory managers a robust source of information necessary for the effective management of stock, process and enhanced planning and forecasting. BPM for Inventory Analysis provides information used to understand:

10   - what is invested in stock

- how effective you are managing and forecasting requirements

- how stock moves through the organization

- how resources are being allocated; and

- ultimately how effective you have been in satisfying the demand of both internal

15   and external customers

The areas of analysis addressed include:

- Stock overview and valuation analysis

- Material movement activity

20   - Demand analysis

- Material Reservations

- Physical inventory analysis

- Forecasts

25

STOCK OVERVIEW AND VALUATION ANALYSIS

The most fundamental questions that inventory managers ask are, "What do we carry in inventory? What is worth? and Where is it?." To effectively answer these questions,

30   managers need to know how inventory is being managed by the organization and how the investment is spread across the company. They not only need to know the inventory profile of specific warehouses, but also how these profiles compare across the organization.

Inventory managers also need to know where the investment is. They need the power to analyze investment from many directions at various levels of detail. Key analysis including ABC, inventory turnover, and inventory coverage are critical - and deliver the greatest value
5   when viewed from these various levels of detail and viewpoints.

BPM for Inventory Analysis delivers rich detail on the inventory investment. It provides the power of drilling from high-level to specific segments of materials, storage, stock types and status. The application addresses questions on stock overview and valuation analysis
10   including:

      - What has been our average corporate investment in stock this period? Where does the investment reside by warehouse? By stock location? How does this compare to the previous period? What has been the trend over time? How volatile is it over time?

      - How much is invested in specific material groups? In raw materials? In finished
15   goods? How has this changed over time?

      - How do materials compare within an ABC analysis? Where are my "A" class materials being handled? How often are they turning?

      - How many units of inventory are we holding for a specific material acrossthe company? Across warehouses? By a specific plant? By storage location? How does this
20   compare to the previous period? What has been the trend over time?

      - What is the availability of the inventory? How much of my inventory is available for distribution? How much is in consignment? How much is restricted stock?

      - What is the velocity of our inventory? Are certain materials fast moving or slow moving, or dead? How does this compare across warehouses? Within a specific
25   warehouse?

      - How often is our inventory turning by material groups? By material types? By specific materials? How does this compare to last period? Has it improved over time?

      - What have the average inventory turns been for the company? What have the turns been by warehouse? Storage location? How does it compare to previous period? and what
30   has been the trend over time?

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- How many days of inventory do we have by material? How does this look across the organization? What has been the trend over time? Has it been sufficient to meet demand or not enough?

5

MATERIAL MOVEMENT ACTIVITY

Another key area of analysis required by inventory managers is an understanding of the movement of inventory in, out, and within the organization. Material movements are the

10   underlying building block of information within the Inventory Management function. Understanding the nature and level of the activity of goods receipts, issues and transfers provides the additional detail on analysis around areas such as stock levels, shortages, resource allocation and the various process associated with the function.

15   BPM for Inventory Analysis provides the summary level movement activity information used for effective analysis that includes drill down by type of movement, material segments, and warehouse. The inventory manager is also provided with transaction level detail used to analyze trends identified from other inventory analysis performed within the application. The types of questions that can be addressed through material movement activity analysis

20   include:
        - How many movements have been processed this period? How do the movements breakout into goods receipts and issues? How does this compare to previous periods?
        - What is the profile of goods receipt of inventory into the organization? How many receipts have been processed for specific materials or material segments? How many

25   receipts have been processed for material from a specific vendor? What is the value of the receipts processed?
        - How many receipts have been processed for specific warehouses/plants? For specific divisions? For specific business areas?
        - Of the inventory received, what proportion were receipts into unrestricted

30   inventory? Into quality control? Into other restricted statuses?
        - How many goods issues were processed this period and how does it compare to previous?

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- What materials were issued? How many issues were related to that material? What quantities were issues? To the material segment? How does this compare to previous periods?

- What types of issues have been processed? What proportion of materials have
5 been issues to fulfill orders? Or issues to scrap?

- Who has been processing the receipts? What volumes of receipts have been processed by employees this period? What has been the trend over time?

- What has been the number of goods issues/receipts over the period? What is the average quantity moved? How does this compare across the organization? Across
10 warehouses? How does this compare to the previous period?

- Provide a detailed analysis of stock movement in and out of inventory. Issues to order fulfillment, consignment or scrap? Receipts to quality control or unrestricted stock?

- Who has processed the issues? What shipping points have goods been issued from? How much inventory has been shipped this period? How does activity compare
15 across shipping points this period? Over time?

DEMAND ANALYSIS

20 The ultimate objective of Inventory Management is to ensure that our customers get what has been promised. Understanding where the balance of inventory policy on supply (i.e., "what we have", "where it is" and "what it is worth") and the demand of internal and external customers ("did we deliver?") is necessary to maximize inventory performance. Moving closer to this balance will ensure that inventory management will continue to
25 contribute to customer satisfaction while working towards improving corporate cashflow.

It is evident that management needs to know where the demand for inventory has come from, how inventory levels have changed, and whether the stock levels and fluctuations have allowed the organization to deliver. BPM for Inventory Analysis delivers the depth of
30 information used to assess inventory policy, and address questions that include:

- What types of goods issues have been processed this period? Have they been to fulfill sales orders? Were they issued to manufacturing? Were they issued for maintenance,

72

repair or operations? How does this compare to the previous period? Has this changed over time?

     - What materials have been issued? What specific material segments have been issued? How has this changed over time?

5   - What has been the stock levels for specific materials across the company this period? What have been the maximum levels of inventory reached? What has been the minimum stock level? Are these fluctuations within predefined limits? How does it compare across warehouses?

     - Did any warehouses experience zero stock levels this period? How often did stock

10 reach zero levels for a warehouse? For a material segment? For a specific material? How does this compare to previous periods? How does this compare to across materials and material segments?

     - For materials that were at zero stock levels, how many days did they remain at zero stock?

15   - How many "stock outs" (defined as the inability to meet a request for inventory in a specific time frame) did the organization experience this period? Which warehouses had the most stock outs? Which storage locations? Do the stock outs relate to specific materials?

     - For materials experiencing the most stock outs, what were the related zero stock

20 counts and zero stock days?

MATERIAL RESERVATIONS

25 Reservations serve to hold material within inventory for specific use either inside or outside the organization. The impact of the reservation is that while meeting a specific demand, they reduce the level of inventory available for use.

Analysis of material reservation activity provides inventory managers with additional

30 insight into the demands for stock to fulfill internal and external customer requirements, and the ability to meet quantities requested.

73

BPM for Inventory Analysis delivers valuable insight into reservation activity, trends and the ability to effectively meet requirements by answering questions, such as:

- How effectively have requirements for a specific material been met through confirmed stock this period? How does this pattern compare to specific material segments? How has this varied over time?

- What warehouses have been most successful in meeting requests for inventory in full? How do they rank? How has this changed over time? Has performance been within acceptable limits?

- How has confirmed reserved stock actually compared to actual stock withdrawn from inventory? Are there specific materials that often have less taken from inventory than was actually reserved? Has this resulted in unnecessary excess stock? How does this impact our inventory policy?

- Are excess inventory reservations prevalent in specific warehouses? Or material segments?

- How much lead-time is there between the request for stock and the required date for the stock? How does this vary across the organization? How has this changed over time?

PHYSICAL INVENTORY ANALYSIS

A key to effectively managing inventory is having a keen view on whether "what we have" actually compares to "what we should have". Physical stock counts, regardless of method used, gives the manager an indication of how effectively or ineffectively stock levels are being managed. Inventory management needs to have the ability to identify exceptions in gaps between the physical and book values of inventory - and to analyze trends of where accuracy outside exception limits are occurring across the organization as a whole, across warehouses, by specific materials and material segments.

BPM for Inventory Analysis delivers valuable analysis on physical inventory, by providing information used to understand this key point of control, including understanding key questions such as:

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- How accurate have our physical counts been across the organization this period?
How accurate are we in units? What is our percent accuracy? How does this compare to
previous periods? Is it improving?

- How large have our shortages or overages been on average? Where have they
5 occurred?

- How does physical count accuracy compare across warehouses? Across storage
locations? Are there any locations that are performing outside corporate standards?

- Are shortages occurring within specific materials groups or materials? Have the
shortages been consistent over-time, or is this a new trend?

10 - Are shortages specific to certain warehouses or storage locations?

FORECASTS

One of the challenges facing inventory managers is how to forecast inventory requirements
- particularly as the further we look into the future, the less we can point with confidence to
15 forecasts as part of the planning process. The more information that is available about the
inventory function, the more effective and valuable forecasts become in working towards
minimizing inventory while meeting demand. Part of this requires a view of how accurate
inventory forecasts have been.

20 BPM for Inventory Analysis addresses the requirements for insight into forecast accuracy,
answering questions that include:

- What were the inventory forecasts for our organization this period? How does it
compare to actual results? What is the variation? How does this compare to previous
years?

25 - How accurate have forecasts been for a specific warehouse? For specific
materials? For specific material segments? How accurate have forecasts been for "A" class
materials?

- How have forecasts for specific items changed over time? How does it compare to
the demand for those materials?

30

MULTI-DIMENSIONAL ANALYSIS

The questions listed in the previous section represent a sampling of the type of valuable information available in the BPM for Inventory Analysis, information used by inventory management professionals to effectively manage their roles and responsibilities.

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Although these questions address the demand for information regarding the investment in stock, process effectiveness, use of resources, and the effectiveness to meet the demand of internal and external customers, it must be noted that the analysis that is possible goes far beyond. The multi-dimensional nature of the BPM for Inventory Analysis data mart, along with the power of Cognos PowerPlay and Impromptu offers robust analysis around any single question - further expanding the knowledge gained from the data extracted from the source ERP system.

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Procurement Analysis

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The Procurement Analysis Functional Area (See Figure 28) includes the following Areas of Analysis:

Procurement Vendor Analysis
Material Related Expenditure Profile
20 Material Demand Analysis
Procurement Process Effectiveness
Procurement Organizational Effectiveness
Bill of Material Analysis

25 One objective of the procurement function is to secure a reliable supply of quality product to meet the material requirements of both internal and external customers - all the lowest total cost of ownership. Effective purchasing organizations focus on sourcing from a consolidated buyer list to maximize corporate leverage, and adopting policies that automate repetitive processes. The impact of procurement's impact on supply chain management has 30 placed focus on the need for the function to understand the effects of the buying decision across all organizational processes - from inventory to manufacturing through sales and service.

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BPM for Procurement Analysis provides the comprehensive analysis used for:

    - ensuring timely availability of commodities when needed

    - maximizing buying effectiveness through realization of full leverage potential

5   across commodities

    - identify opportunities for development of strategic buying relationships

    - increase customer satisfaction through meeting demand and delivery of quality

product

    - assess buying effectiveness of the purchasing organization down to the commodity

10   and individual buyer

    - recognize areas for improvement in the procurement cycle

    - analyze expenditures, commodities purchased, vendor performance, buyer

performance

15   The BPM for Procurement data mart is one in a series of prepackaged data marts aimed at
meeting the market demand for cross-functional business intelligence (BI) against data held
within corporate Enterprise Resource Planning (ERP) systems and other sources of data
within the enterprise.

20   BPM for Procurement will contribute to the core functional information requirements of an
enterprise, taking its place within the BPM "backbone" which is comprised of data marts
targeting other core data including sales, distribution, billing, inventory, financial and cost
accounting, and human resource management.

25

BPM FOR PROCUREMENT

The procurement function has long played a key role within the corporate environment.
Controlling expenditures that can reach up to 65% of revenues, the effectiveness of the

30   procurement function has a direct impact on its organization's bottom line, with each
percentage point saved going directly towards profit.

Working hand-in-glove, the procurement and inventory management functions are responsible for ensuring that there is enough material to meet the needs of internal and external customers - quality materials acquired for the right amount, from strategic suppliers, at the right price, available when needed.

5

Since the 1930s, the procurement function has evolved from transactional processing to the current day requirement for strategic purchasing as a core component of the corporate supply chain and competitive advantage. When a company's procurement function has moved beyond "price-driven purchasing" towards maximizing the corporate buying power

10 through well developed relationships with strategic supply partners, they will ultimately experience improvements in product quality, dependable supply, competitive pricing, and process efficiencies.

For the purchasing function to effectively deliver on its objectives, its need to understand where the money is being spent - and who it has been spent with. It needs to know where

15 the opportunities exist for leveraging current buying power across the organization as well as how current suppliers have met expectations for quality and reliability. Purchasing management also needs to understand how effective the process has been in working towards achieving the functional performance objectives.

20 BPM for Procurement Analysis delivers value to managers by turning raw data into the information used to take action. BPM for Procurement Analysis provides a host of key performance metrics and decision-ready reports that enable users to analyze purchasing volumes and patterns across commodities, analyze performance of the buying organization, deliver vendor score-carding, review comparative vendor performance, and assess

25 operational effectiveness.

Here are some of the business-critical activities that users will be able to accomplish quickly with the BPM "business backbone" and for Procurement Analysis:

      - Maximizing buying effectiveness through realization of full leverage potential

30 across commodities

      - Identify opportunities for development of strategic buying relationships

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       - Increase customer satisfaction through meeting demand and delivery of quality product

       - Assess buying effectiveness of the purchasing organization down to the commodity and individual buyer

5   - Recognize areas for improvement in the procurement cycle - from requirement identification through purchase order to receipt of inventory and invoice payment - ensuring timely availability of commodities when needed

       - Analyze expenditures, commodities purchased, vendor performance, process effectiveness, buyer performance, and more.

10

THE PROCUREMENT PROCESS, BUSINESS-TO-BUSINESS (B2B), and C-COMMERCE

15   To be competitive in today's marketplace, organizations are realizing that they not only need to embrace the power of e-Commerce, but they must look beyond to c-Commerce (collaborative commerce). C-Commerce identifies the need to share information with your key partners and suppliers. It identifies the need for organizations to leverage the experience and insight of their channels to better understand the supply chain - and gain and

20   sustain competitive advantage.

A user's strategic suppliers have a unique view of the world - not only should they understand a user's business, but they also have a wider perspective of the user's enterprise in relation to competitors. They know what has been working, what is changing within the

25   industry and how new processes are replacing the standard. Through the sharing of insightful information into the BPM Procurement function, a user's suppliers will be in a position to provide recommendations on purchasing policies, commodity substitutions, and process enhancements - all aimed at improving the efficiency of the supply chain, the effectiveness of buying practices and their role as a strategic partner. They will also benefit

30   from an understanding of how their performance as the user's supplier is meeting expectations, and where they can focus on ensuring they maintain preferred supplier status.

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Ultimately this empowers the Purchasing manager to better plan and forecast demand requirements, while identifying opportunities to benefit most from the organization's buying power, and eliminating inefficiencies in the process of acquiring the commodities needed to make the business run. This enables the Procurement organization to buy what is needed at the best price, while ensuring a stable supply, all done as efficiently as possible.

BPM for Procurement Analysis as part of the BPM Enterprise Business Intelligence (EBI) solution enables purchasing to optimize and enhance the supplier relationship chain by allowing users to share key buying information such as:

- corporate buying patterns and annual purchasing volumes by commodity

- commodity price analysis

- distribution of expenditures across the supplier base

- supplier performance including on-time delivery, product quality, full order fulfillment and price variation

- as well as other valuable information which will bring a user's company and a user's key partners and suppliers closer together and ultimately improve the supply chain

INFORMATION REQUIREMENTS WITHIN THE PROCUREMENT FUNCTION

BPM for Procurement provides information for analysis and decision making at various management levels within a company's material management organization.

One objective of the procurement function is to secure a reliable supply of quality product to meet the material requirements of both internal and external customers - all at the lowest total cost of ownership. Effective purchasing organizations focus on sourcing from a consolidated buyer list to maximize corporate leverage, and adopting policies that automate repetitive processes. Ultimately, the realization of procurement's impact on supply chain management has placed focus on the need for purchasing to understand the effects of the buying decision across all organizational processes - from inventory to manufacturing through sales and service.

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To accomplish their objectives, purchasing managers need information. They need to know what is being bought, from where, for whom, for how much and how effectively. To ensure that the source of supply is secure - they also need to know how reliable the supplier base is and who the strategic vendors are. Finally, these managers need to ensure that the processes

5   and policies that have been adopted are efficient in delivering the required supply, and this also requires the availability of key process information.

Managers need to understand how the combination of all these variables impact their ability to meet the purchasing policy and strategy - and ultimately how effective current plans and

10   processes are in contributing to the corporate mission aimed at returning the greatest value to its stakeholders.

BPM for Procurement delivers the robust in depth reporting and analysis needed to answer the questions that deal with:

- the identification of commodity buying volumes and trends

15   - source list analysis

- pricing analysis

- vendor performance scorecarding and comparison

- procurement cycle analysis

20   BPM for Procurement Analysis delivers information to answer these questions and with the depth and breadth of content to meet the needs of managers at all levels of the organization, which includes:

- High-level executive and senior management strategic analysis examining the performance of the corporate procurement function and effectiveness of the process in

25   achieving functional objectives against baseline, current period and monitor changes over time

- Purchasing managers require both strategic and tactical analysis targeted at understanding the effectiveness of plans, distribution of purchasing budget across commodities and vendors, and efficiency of the purchasing process and resources

30   - Buyer level commodity specific reporting for analysis of vendor and material purchasing volumes, vendor performance, and price analysis

Figure 42 outlines the high-level activities within an organization's purchasing function. It is worth noting that while organizational structures will vary between companies (i.e., differences specific to company size, industries, culture), the questions addressed by BPM for Procurement Analysis are, for the most part, cross industry in nature.

BPM FOR PROCUREMENT ANALYSIS - AREAS OF   ANALYSIS

BPM for Procurement Analysis offers purchasing managers a robust source of information for the effective management of the procurement process as it relates to commodities being sourced, supplier relationships, understanding internal demand, monitoring the efficiency of the process, and enhancing planning and forecasting.

The areas of analysis addressed by the application include:
- commodity related expenditure profiles
- vendor related expenditure profiles
- commodity demand analysis
- vendor scorecarding and comparison
- procurement process effectiveness

COMMODITY RELATED EXPENDITURE PROFILE

The primary responsibility of the purchasing department is to buy product in sufficient supply to meet demand. However, it is no longer sufficient to simply fulfill orders as requested. To ensure that it continues to deliver maximum value to the organization, the procurement function needs a deeper understanding of "what is being bought". They need to know what materials make up their material list and how they contribute to respective bill of materials, how each compares in volume and value, and where there are opportunities for consolidation or substitution.

Ultimately, this deeper level of understanding takes purchasing from a transaction processing function to one that works to improve the supply chain- and is considered a contributor to corporate competitive advantage. Once armed with the information which comes from multidimensional analysis, purchasing managers and buyers alike are in a
5   position to identify opportunities for efficiencies in buying, and ultimately maximizing their organization's commodity specific buying power.

To effectively manage commodity related purchasing profiles, managers need information that delivers a view of purchasing patterns by material from various viewpoints. BPM for
10   Procurement Analysis delivers this information, answering questions that include:
         - What materials has our procurement organization purchased this period? In what volumes? What is the total value? What is the total landed cost of materials purchased? How does this compare to the previous period? How has this changed over time?
         - How is the total landed cost of a commodity distributed across cost of the unit,
15   transportation, tariffs and other carry costs? How has this changed over time?
         - How has the procurement budget distributed across materials purchased in a period? How is it distributed across material groups or material types? How are materials distributed in an ABC analysis - which materials consume the largest proportion of our budget? Which materials consume the smallest portion of our budget? How does this
20   compare over time?
         - How many items do we carry on our material list? Has this increased or increased over time? Are there opportunities for consolidation or substitution to maximize buying power?
         - How have volumes ordered and prices changed over time for a given commodity?
25   How has it changed across a material group? How has this changed over time?
         - How are purchases of materials distributed across buyers? What percent of materials contribute to the volume being processed by a buyer? How do the volumes of materials purchased compare across buyers? Are there opportunities for consolidating the purchasing of materials across buyers?
30   - How have materials performed in the process? Which have been the most reliable? Which have been least reliable? How does quality compare across product? Across product groups? How has this evolved over time?

VENDOR RELATED EXPENDITURE PROFILE

5   As mentioned, for the purchasing function to deliver maximum value there needs to be an
understanding of what has been bought (i.e., the commodity related purchasing profile).
Similarly, another key area of analysis that is required by procurement professionals is that
of answering the question "Who are we buying from?"

10   A characteristic of industry leaders with superior supply chains is the consolidation of
source lists to single or sole source scenarios for particular key commodities -this ensures
that organizations are maximizing their buying power for specific or groups of materials
with the supplier base.

15   Related is the fact that these key vendors are more than simple suppliers of materials -they
are considered strategic partners of the organization. Strategic suppliers are those who have
proven the ability to supply the products needed within specifications at a competitive price,
and are also in a position to deliver insight into the supply chain.

20   Ultimately, the purchasing function's understanding of "who" the budget is being spent with
provides the necessary insight into:
        - Who we are doing business with
        - Where are there opportunities for source consolidation
        - Potential points for leveraging an organization's full buying power, and
25   - Subsequent efficiencies in the buying and release processes

Vendor related expenditure profile information plays an important role within the
purchasing function, and BPM for Procurement Analysis delivers analysis to answer
questions that include:
30   - Which vendors has our procurement organization purchased from this year? How
many vendors does this include? How does it compare to last period? How has it changed
over time?

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- What commodities are purchased from a vendor? For a group of vendors? How
many materials are purchased from a vendor? On average how much is spent per vendor in
a specific period? What is the average volume purchased from a vendor?

- Which vendors do we purchase the most from? How do vendors rank by volume
5   and revenue spent? How does this compare to last period? How has this changed over
time?

- How many vendors do we have for a specific commodity or groups of
commodities? What percentage of the volume for the commodity is sourced from multiple
suppliers? How has this changed over time?

10   - How do prices compare across vendors for a specific commodity? How has this
varied within the period? Across periods?

- What contracts are outstanding? What is total value of contracts with vendors in a
year? Across vendors? What percentage of purchasing agreements are fulfilled within a
period? How has this changed over time?

15   - What terms are offered by suppliers (ex. payment terms, deliver)? How do
purchasing terms compare across vendors? How much has been spent with a particular
vendor for additional charges to receive the good ordered (ex., Inco terms, FOB terms,
transportation charges)?

20

COMMODITY DEMAND ANALYSIS

Before anything is bought, the purchasing department needs to understand what is required,
when it is needed, and what the options are for meeting future demand of the internal
25   customer. An understanding of whether requisitions are related to MRO (maintenance,
repair and operations) functions, manufacturing jobs, or other types of order fulfillment,
impacts the buyers strategy for sourcing the right product at the best price.

It is also important for the purchasing professional to understand the demand patterns for
30   specific commodities and the frequency and size of requests being submitted from internal
customers.

Ultimately, commodity demand analysis provides the information required for effective planning of a purchasing strategy, managing current commodity requirements and optimizing the "buy" phase of the process. BPM for Procurement Analysis addresses questions regarding demand analysis which include:

- What commodities have been requested by internal customers this period? How do these purchases translate into particular commodity groups? How does this compare to the previous period? How has it changed over time?

- What types of request have been processed by our purchasing organization (ex. MRO, manufacturing job orders, MRP)? What is the volume of commodities or commodity groups processed by period for each type of request? Are there patterns that identify opportunities for efficiencies? How has this changed over time?

- What percent of the buying budget is spent on each respective demand channel to meet their material requirements? How does this compare to the previous period?

- How is each buyer's activity distributed across respective demand channels? Are there opportunities for redistribution of responsibility?

- Are there patterns of different demand channels ordering similar commodities? Does this present an opportunity to synchronize requirements across channels for consolidated buying? Are there opportunities for substituting materials internally to increase buying leverage?

VENDOR SCORECARDING AND COMPARISON

Once an organization has determined what the material requirements are and which vendors will provide the supply, purchasing needs to ensure that the vendors who have been identified as strategic are performing within the acceptable standards. Reliable suppliers contribute to the overall performance of the supply chain, ensuring that an organization is able to meet the demand of its customers. Conversely, suppliers who are not delivering on their promises can cause inefficiencies due to poor product quality, delays in production, and/or price fluctuations.

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To effectively evaluate vendor performance, purchasing management needs to monitor its strategic suppliers' ability to meet expectations in the areas of:

- Quality of product delivered
- On-time delivery
5   - Full deliveries of quantity ordered
- Price competitiveness, accuracy and fluctuations of commodities purchased

These measures as part of a vendor scorecard provide procurement professionals with the measuring stick required to ensure that the current source list is meeting their obligations.
10   Suppliers who are successful in meeting these expectations are those who can be counted on to enhance your supply chain through their reliability, and their ultimate impact in lowering the total cost of ownership. Conversely, suppliers who are not performing would benefit from having access to performance information to allow for improvement. Alternatively, the organization can use the scorecard to identify where changes in the source list are
15   required.

The BPM system delivers vendor performance scorecard analysis that can be used to evaluate specific suppliers or compare vendors across the organization, answering questions which include:
20   (Note: Vendor evaluation as it applies to the procurement process requires input from across functional areas, which include purchasing, inventory management and accounts payable. Most of the questions addressed below are cross-functional in nature, and are addressed with BPM for Inventory Analysis, Procurement Analysis and Accounts Payable)

- Has a vendor been successful in delivering orders on time? If not, whatpercentage
25   of orders are typically late? On average how late are the orders? Are late orders commodity specific? How does this performance compare across vendors? Were late deliveries within expections? What has the trend been over time?

- Of the deliveries received from a vendor, how many were delivered with inaccurate quantities? On average what was the discrepancy in quantities received from a
30   vendor? How does this compare across commodities sourced from the vendor? How do vendors compare in their ability to deliver accurate quantities?

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- What percentages of materials received from a vendor have met quality standards?
How many units were returned at receipt? How many were rejected on the production line?
How do returns compare as a percent of units received? How does this compare across
vendors for a specific commodities? How does it compare for a vendor across all
5   commodities sourced? How has this changed over time?

- How do prices compare for a commodity across vendors who supply the product?
How have the prices changed over time? What was the percentage change of prices for the
commodity over time?

- How effective have vendors been in invoicing materials at prices agreed upon on
10   the purchase order? What percentages of invoices received contain inaccurate pricing or
add-on charges and require correction? How does this compare across commodities
provided by a vendor? How does this compare across vendors?

15   PROCUREMENT PROCESS EFFECTIVENESS

The efficiency of the procurement function has long been a component of corporate
effectiveness. Essentially, procurement is expected to source the goods required for the least
investment in overhead. Hence, it is understood that to deliver maximum return through the
20   purchasing cycle requires the elimination of non-value adding steps - which can range from
streamlining the activities required to release a purchase order to the pattern observed in
buying from particular vendors.

Procurement managers need information that examines the steps in the purchasing process,
25   the time required to move through the cycle and the efficiency within each phase of the
cycle. Information that presents understanding of the process and opportunities for
improvements translates into a decrease in the cost of acquiring the necessary materials,
which in turn translates into increased profits.

30   The BPM system provides procurement managers with a cross-functional view of the
process, used to identify opportunities for efficiencies, addressing questions that include:

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(Note: Part of the measurement of process effectiveness analyses the time between activities and between organizational functions. Some of the questions listed below are cross-functional in nature, and are addressed with BPM for Inventory Analysis, Procurement Analysis and Accounts Payable)

5   - How many transactions are performed in a period for various stages in the procurement cycle? How do these volumes compare to the total level of purchases within a period? How many requisitions, contracts, purchase orders are processed across the organization? How do these relate to specific purchasing groups or buyers? How does this relate to specific commodities? What is the average value of each transaction? How does

10   this compare to the previous period? How has this changed over time?

       - How long does it take to move from one stage to the next in the procurement cycle? How long does it take to go from requisition to a purchase order? How does a release procedure impact the time to request a product? How do processing times relate to specific materials? To specific vendors? To specific buying groups? Where are the

15   opportunities for reducing ordering lead time across commodities?

       - What percentage of requisitions submitted are declined? What are the reasons for rejection? How does this compare across buyers? How does this compare across commodities? How does it compare across demand channels?

20

THE PROCUREMENT PROCESS IS CROSS FUNCTIONAL

As has been illustrated, BPM for Procurement Analysis delivers key information required by management to effectively analyze the performance of an organization's procurement

25   function. However, the procurement cycle is cross-functional in nature.

The procurement process ranges from the receipt of material requirements to the issuance of requests for proposals and purchase orders, through to the receipt of goods and confirmation and payment of invoices. To truly understand the impact that procurement has on the

30   organization's competitive advantage, this cross-functional view is required, which includes information from:

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- Purchasing: The purchasing function provides the information required to analyze activities related with receipt of requirements (requisitions), maintaining a source list, managing contracts and issuing purchase orders. The purchasing function provides key information on the activity of vendors and commodities as they relate to the organization.

5

- Inventory Management: Inventory management works hand-in-glove with the purchasing function, both are tasked with ensuring there is sufficient supply of materials when they are needed. In particular, Inventory management provides the information necessary to evaluate vendor performance on measures relating to goods receipt - "How effective have
10 the suppliers been in delivering what we asked for, of an acceptable level of quality, on time?"

- Accounts Payable: Accounts payable provides information on the final stages of the procurement cycle, answering the question of what have we been invoiced, and what have
15 we paid for materials purchased within the period. Like inventory management, accounts payable provides key measures in assessing vendor performance. As part of the "three way verification" process (i.e., the check of prices and quantities across purchase orders, goods receipts and invoices), accounts payable ensures that we are invoiced for what was received at the prices negotiated. The effectiveness of the vendor meeting these requirements
20 establishes the cost of doing business with a supplier in the purchasingcycle.

- Human Resources and Finance: As a measure of efficiency, Human Resources (HR) and Finance identify the resources required to perform the purchasing function. HR provides information on the "head count" necessary to perform the purchasing function for specified
25 levels of buying activity. Ideally, the same head count should be able to process larger volumes of activity due to efficiencies and automation of the process. In a similar sense, Finance identifies the procurement related overhead costs that are incurred in meeting the demand for materials - the less the better. Overhead and head count measures are required for gauging the effectiveness of the purchasing function and its processes.

30

The BPM system through the use of confirming common dimensions (ex. vendor, materials, etc.) ensure that the reporting within each functional area as delivered by BPM applications

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for Inventory Analysis, Procurement Analysis and Financial Analysis, are robust, while provide the ability to report across applications. The design for integration across the BPM system allows for a view of information across functions -hence ensuring that procurement professionals truly see the impact across the process.

MULTI-DIMENSIONAL ANALYSIS

The questions listed above represent a sampling of the type of valuable information available in BPM for Procurement Analysis, which purchasing management professionals require to effectively manage their roles and responsibilities.

While the questions address the demand for information regarding the commodities purchased, vendor activity and performance, analysis of internal demand, it must be noted that the analysis that is possible goes well beyond this. The multi-dimensional nature of the BPM for Procurement Analysis data mart, along with the power of Cognos PowerPlay and Impromptu offers robust analysis around any single question -further expanding the knowledge gained from the data extracted from the source ERP system.

e-COMMERCE ANALYSIS

BPM for e-Commerce Analysis

Today's market presents companies with an unprecedented level of competition. The Internet has given customers a new level of power and has blurred the differences between companies vying for their business. In the e-business world, the key to closing more deals, closing bigger deals, and closing them faster is to build strong customer relationships.

To do that, companies need the right information... facts... insight. They need to spot top prospects and move quickly with solutions that hit the mark. They need the power to analyze trends, avert bottlenecks, and put resources where they're required most.

BPM for e-Commerce Analysis turns raw data into increased sales. Companies can select from a host of key performance metrics and decision-ready reports that enable them to analyze the who, what, when, where, why's of their e-commerce activity , and examine revenues and profitability.

5

They will be able to evaluate the effect of buying incentives such as discounting to increase volumes, or induce cross-sell or up-sell behavior. They will be able to identify or target new or repeat customers to identify trends and capitalize on opportunities, to increase revenues, minimize costs, and strengthen the e-commerce channel.

10

Thriving in an electronic marketplace means embracing e-business and using technology to create, manage, and deliver analytical information. Here are some of the business-critical activities that users will be able to accomplish quickly with BPM for e-Commerce Analysis:

- Increase customer satisfaction and boost win rates

15
- Better understand the buying habits of your customers

- Refine the way that your company interacts with customers

- Improve forecasts and budgets

- Analyze customers, order types, product groups, and more!

20

THE CUSTOMER RELATIONSHIP MANAGEMENT PROCESS

With the increasingly competitive corporate marketplace being further magnified by the Internet, the need to understand, satisfy, retain and grow our customers is greater than ever.

25 This explains the emergence over the past several years of the Customer Relationship Management process across industries. The e-commerce order process is a key component of the CRM process, with all on-line touch point activities culminating in the sale of products or services. BPM for e-Commerce Analysis addresses key questions for better understanding the customer behavior - including indicators of customer buying trends,

30 measures of activity and customer profiling.

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e-COMMERCE ANALYSIS - BUSINESS READY

Companies can use BPM for e-Commerce Analysis to provide the information used to make decisions that will keep customers, and generate more revenue.

5   - Adopt a profit-centric e-commerce model that aligns e-commerce goals with corporate goals

- Develop more effective planning and forecasting with a big-picture view of the e-commerce function

10   Analyse e-commerce performance from unlimited perspectives including customer demographics, shopping basket, product group, and more.

INFORMATION REQUIREMENTS WITHIN THE e-COMMERCE ORGANIZATION

15

BPM for e-Commerce Analysis provides information for analysis and decision making at various management levels within a company's e-commerce and marketing organizations.

One objective of the e-commerce and marketing functions is to plan, execute, manage and
20   monitor strategies and plans (ex. e-commerce strategies, campaigns, and product strategies and management), that are in alignment with the corporate mission and will ultimately return the greatest value to its stakeholders. This requires an understanding of how effective the e-commerce system has been in generating revenue, as well what has contributed to this performance. In their efforts to achieve these objectives, managers
25   within the e-commerce and marketing functions require a keen understanding of "how things are going"...which begins with an analysis of the information being captured in the e-commerce process. BPM for e-Commerce Analysis delivers the information necessary to answer these questions, with the depth and breadth to meet the needs of managers at all levels of the organization:

30   - how the e-commerce system is contributing to revenues and profit margins

- how product lines are performing

- who are their most valuable customers, what are their buying trends, and

93

- how efficient the e-commerce process is in generating revenue

- strategic analysis examining how marketing and e-commerce strategies have impacted cross-organizational performance, monitor changes overtime to identify trends

- e-commerce product and marketing management tactical reporting and analysis targeted at understanding the effectiveness of plans designed to meet corporate objectives

- Operational reporting (ex. e-commerce customer buying profile) and process effectiveness.

BPM for e-Commerce AREAS OF ANALYSIS

BPM for e-Commerce Analysis addresses four main areas of analysis within an organizations e-commerce and marketing functions, aimed at assessing the effectiveness of the e-commerce cycle from the e-commerce order forward.

These areas of analysis include:

- e-commerce performance
- customer profiling and buying trends
- buying trends
- product performance

e-COMMERCE PERFORMANCE

A measure of corporate effectiveness in marketing its products and services is the question of "How much have we sold?"

Managers across the organization need to know how revenue, volume and margin expectations are being met. They need to know what parts of the organization are delivering on expectations, and how various geographies are performing. These requirements filter down to the e-commerce managers needing to know how they are doing? How their performance is meeting expectations today and over time.

94

BPM for e-Commerce Analysis delivers information for in depth analysis of e-commerce revenues, volumes and margin across the e-commerce product offering, addressing questions such as:

- How much has the company sold through the e-commerce site this period -
5   revenue and volume? How does it compare to last period? What is the percent increase or decrease? What has been the trend over time?

- What geographies / markets have done well for us? Where are we loosing ground? Are our high revenue geographies / markets delivering on margin? Are we seeing the percent growth necessary?

10   - What day of the week and time of day do the greatest / least number of sales occur?

CUSTOMER PROFILE AND BUYING TRENDS

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Organizations need a clear understanding of who their customer base is, what they want, and how their needs are being met. The emergence of the Customer Relationship Management process across organizations further supports the importance of comprehensive customer analysis.

20

Ultimately the effectiveness of corporate e-commerce and marketing strategies, coupled with quality of product and service should translate into greater "share of customer"- which can be measured by changes in the breadth of product purchased, the volume of products purchase, and changes in contribution to revenue and margin over time.

25

BPM for e-Commerce Analysis allows for analysis of customer trends and contribution, and changes in buying patterns by demographic or segment. E-commerce systems capture a rich set of customer demographics such as age, gender, marital status, income, household size and number of children. These demographics provide the opportunity to develop an
30   in-depth understanding of the customer base and the ability to closely examine who is buying what, when and how much. Examples of the types of questions that can be addressed include:

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- How many customers are buying through e-commerce? How has this changed over time?

- What is the average revenue per customer? Which customer groups offer the highest total and average revenue contribution? Which groups are contributing most to volume? Most to margin? Have our average purchases per customer been increasing or decreasing over time? Have the number of products being purchased increased or decreased over time?

- Have revenues from a specific customer group been increasing over time - is this an indication of trend - an opportunity? Have the revenues for these groups decreased - and if so is it a product related, or pricing issue?

- Which customer demographic is driving sales? Is there a definite pattern? Is there an opportunity to target a specific customer profile?

- Who are our must active customers? Is there a link between a specific customer profile and those customers that are regular , repeat buyers? Is there a specific customer profile of those that we are losing after the first purchase?

- Which customer demographic is driving specific product sales? What is the most popular product attribute by demographic? Is there an opportunity to cross-sell or up-sell customer s of a particular demographic?

PRODUCT e-COMMERCE TRENDS

Knowing our customers and what they want opens a window to view the effectiveness of the corporate product offering. A key component to developing market strategies and product planning is an understanding of our market segments, how the current product offering addresses the customer requirements, and how this has evolved over time. E-commerce management and their teams also require analysis that allows them to assess the effectiveness of their operations and how products are contributing to achieving their goals within their markets.

BPM for e-Commerce Analysis delivers product analysis to answer the questions of both the e-commerce and marketing functions, which include:

96

- What product lines or specific products are we selling? How much revenue are they generating? How have these lines contributed to overall margin? How have these products performed to the previous period? and over time? What has been the rate of change? Which products are emerging as leaders? Which products are experiencing

5   declining share?

- Where have the products been selling? Which geographies? Which customer groups? Rank to show my leading products.

10   OPERATONAL EFFECTIVENESS

The importance of a company's strong understanding of its customer base and the effectiveness of its product offering has been identified as key. However, if the organization is to deliver on its commitment to maximizing the value delivered to its

15   shareholders, the e-commerce function must extend its contribution to the goal by evaluating the effectiveness of the e-commerce order taking process.

BPM for e-Commerce Analysis provides details on the process ranging from addressing questions on volumes of transactions being processed and various points in the chain to how

20   are resources being allocated. Examples of the types of questions that can be addressed include:

- How many e-commerce orders are being processed per year?

- How does this volume relate to revenue?

- Has this been improving over time?

25   - What is the cost per sales order transaction of the e-commerce system and how does the cost per e-commerce transaction compare to traditional sales order transaction costs?

30   THE POWER OF MULTI-DIMENSIONAL ANALYSIS

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The questions listed above represent a sampling of the type of valuable information available in BPM for e-Commerce Analysis, which e-commerce and marketing professionals use to effectively manage their roles and responsibilities.

5   While the questions address the demand for information regarding the e-commerce order taking process of the e-commerce cycle, it must be noted that the analysis that is possible goes well beyond. The multi-dimensional nature of the BPM for e-Commerce Analysis data mart, along with the power of Cognos PowerPlay and Impromptu offers robust analysis around any single question - further expanding the knowledge gained from the data

10   extracted from the source e-commerce system.

Examples of Embodiments of this Invention

15   This invention contains a number of packaged reports that reflect the business requirements for important areas such as Finance, Sales, and Inventory.

One embodiment of a component of this invention, Financial Analysis e-Application (See Figure 3), speeds reconciliations, period-end closings, and financial reporting and

20   distribution by giving managers the information they need to analyze income statements, balance sheets, cash flows, key financial ratios, or currency rate conversions.

Types of financial reports available to end users include:
- Overview reports, such as income statement and balance sheet

25   - Income statement analysis
- Balance sheet analysis
- Budget analysis
- Analysis by legal entity
- Analysis by management entity

30   - Operational reports, such as cost center and general ledger analysis

98

Another embodiment of a component of this invention, Sales Analysis e-Application (See Figure 5), allows users to analyze forecast accuracy and sales volume, calculate average deal size, and examine revenues and profitability, and so on.

5   Types of sales reports available to end users include:
- Reports by customer, such as customer sales ranking or customer sales by region
- Reports by product, such as order summary, or product sales ranking
- Reports by sales organization, such as orders by reps or by country
- Reports by profit
10   - Reports by quantity sold

Another embodiment of a component of this invention, Inventory Analysis Suite of e-Applications (See Figure 4), provides inventory managers with the information they need to understand supply chains and assess demand forecasting accuracy, inventory carrying costs,
15   supplier performance, and warehouse performance, and so on.

Types of inventory reports available to end users include:
- Inventory performance, such as stock level overview or profile of plants by stock level
- Demand analysis, such as stock usage comparisons, or materials profile of demand
20   - Material tracking
- Vendor analysis by stock movements
- Resource activity, such as activity comparisons or plant/employee analysis

99

Data Model

The Data Model is an implementation of the BPM model. An example of the data model is represented in Figs. 15a to 15y and Figure 29.

5

Common Dimensions

Traditional stovepipe data warehouse applications, such as data marts, may serve certain departmental decision-making needs, but they fail to offer all-important enterprise-wide

10 views. By incorporating common dimensions, the data model allows knowledge workers to share information across departments and gain important decision-making synergies. Based on common terms and common information, common dimensions ensure that users in relevant departments or functional areas approach business issues using the same references.

15

Each component of the Data Model has been designed from careful consideration of the business dimensions or measures that are common to each functional area of the business. Based on common terms and common information, these dimensions ensure that users in relevant departments approach business issues using the same references. (See Figure 6).

20

For example, the dimension "customer" would mean precisely the same thing to a sales manager as it would to an inventory warehouse manager or a finance vice president. Without conforming dimensions, each department would likely develop different definitions, hierarchies, terms, and dimensions for many of the same business measures, an

25 inefficiency that can sidetrack productivity and hamper decision-making.

Incorporating common dimensions means IT builds the tables only once, and less redundancy because data is stored once, and shorter time to update because data is loaded once. Moreover, multiple star schemas can leverage the shared dimensions to reduce

30 update time and resources. Updates occur once, not five times, which speeds the update process. In addition, common dimensions save disk space, reduce redundancy, and ensure that data is consistent from one mart to the next.

100

Star Schema Design Speeds Queries

The BPM system data marts perform business performance management much faster than
5   traditional ERP systems, which distribute data fields among thousands of tables. Finding
the fields that describe a given query in an ERP system often requires joining copious
tables, a time-consuming step that slows analysis and drains database processing power.
Optimized for high-speed analysis and reporting, the BPM system incorporates a star
schema architecture that accelerates query performance and produces fast business insight.

10

The Star Schema

Star schema architectures contain two types of tables—fact tables and dimension tables. A
15   fact table comprises the transaction history associated with each activity being modeled.
These fact tables store the numerical measurements of the business and include an ID field
for each dimension that they represent. For instance, a Sales fact table might include fields
for Customer ID, Sales-person ID, Product ID, Quantity Sold, Discount, and Total Amount,
etc. The fact table is linked to several dimension tables that qualitatively describe the fact
20   table fields in more detail. For instance, the Salesperson ID dimension table might include
Salesperson ID, Salesperson Name, Phone Number, Sales Office, and Employee Number,
and so on.

This star structure, with the fact tables surrounded by satellite dimension tables, allows
25   users to drill down quickly into the data to uncover correlations between dimensions and
elements in the fact table. Forming queries involves a set of simple one-way joins, from the
fact table to each dimension, rather than complex multi-step joins through multiple levels of
tables. Users get the in-formation they need quickly, allowing them to solve business
problems, spot trends, or act on opportunities.

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The BPM system evaluates the components of the end-to-end solution you need and translates this information into data models that reflect the analysis and reporting capabilities you need based on the business information needs. (See Figures 7, 9 and 8).

5

Building Coordinated BPM System Data Marts

Using best warehousing practices to construct the BPM system data marts, the components of the data model are designed for the enterprise and deployable by department, an
10   approach that delivers value to end users and achieves enterprise-wide decision-making cohesion as quickly as possible. The data model was created to serve as the information backbone of an organization. By building this backbone section by section and tying functional areas together with common shared dimensions, organizations generate a powerful decision-making support infrastructure that can grow as the organization grows.
15

102

BPM Application

The BPM system also relates to the challenges that organizations face when implementing data warehouses and traditional "stove pipe" data marts. It provides a solution—the
5   integrated data warehouse—which comprises a series of coordinated data marts. These coordinated data marts allow organizations to deliver value-laden enterprise-wide business performance management solutions that are important to competitive advantage in the e-business economy.

10   The BPM system also relates to building an integrated data warehouse from scratch, and describes a packaged solution. The BPM system comprises of complete end-to-end analytic applications for business performance management that include defined extractions and data models, proven business content, and best practices displayed through captured business metrics, and a full suite of key performance indicators (KPIs), reports, and analyses.

15
Built upon an operational framework and robust production environment, the BPM system helps decision-makers rapidly derive business value from their enterprise data. By using the BPM system, organizations receive a complete, cross-functional view of their ERP and e-business data, which provides a strategic perspective on KPIs. And they reduce
20   implementation costs and effort, which accelerates time to results.

Integration and Extendibility

25   Building a traditional data mart from scratch requires evaluating every component of the end-to-end solution— the extraction process, transformation process, data models, data marts, multidimensional components, and user reports—and then integrating them into a high-performance analysis and reporting system based on an existing specific ERP system. With the BPM Application, this evaluation and integration work is done for a user. All the
30   pieces work together out of the box, making lengthy evaluations unnecessary.

103

In addition, although the BPM Application comes ready to deliver instant analysis and reporting value, users may have the option to extend the BPM Application to better suit their specific needs. Perhaps users want to add additional source system data, incorporate external data, rework the packaged reports, or incorporate special graphics. Users are

5   offered this flexibility and are enabled to integrate these extensions with other components of the BPM Application. By making provisions for the unique way that a company operates, users can augment the analysis and reporting value that the solution offers.

As well, one embodiment of a component of the BPM Application, the BPM system

10   Console—a production control environment—can integrate and manage all the extensions. This capacity saves users from dealing with extensions on their own; users can easily tie them into the BPM system Console and gain the same production control and management benefits that accrue to the out-of-the-box applications themselves.

15   In addition, users can deploy components of the BPM Application as required—for example, on the Web, in a client/server configuration— whatever is most effective for their environment. And by taking advantage of OLAP tools and visual reports, organizations will be well equipped to meet the information needs of all their users.

20   The BPM Application includes five components as described in Figure 30.

As shown in Figure 30, the BPM Application includes:

1.   An ERP System;

2.   A BPM Application;

25   3.   A set of Extract, Transform, and Load Software Programs

4.   A Star Schema

5.   Catalog Cubes Reports

6.   An Operational Framework

7.   A Console

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Business Driven Extractions and Source-to-Target Mappings

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The business driven extractions and source-to-target mappings are labeled as "Extract, Transform and Load" on Figure 30. Business-driven extractions and source-to-target mappings incorporate business rules that unravel major ERP systems such as SAP R/3, Oracle Applications, and J.D. Edwards, and are open to alternative sources.

Data Acquisition

A very complex part of building a traditional data mart involves extracting the right data from the source system, transforming it into the desired form, and loading it intothe data marts. To facilitate and expedite this process, a repository is built for the a component of the BPM Applicaiton—the e-Applications ETL tool—that understands both the source ERP system and the targets. This repository uses business rules to transform data from the ERP system to the targets.

The BPM Application simplifies the complex process of extracting data from specific source systems such as J.D. Edwards, SAP R/3, and Oracle. Overcoming the technical hurdles and addressing the unique characteristics involved in each system, the BPM Application identifies the reporting data needed and supply the methods to extract it.

Extraction

Traditional, to extract data properly requires in-depth knowledge about the underlying source system. Developers need to know where the relevant data comes from and what the specific data structures look like. They also need to know about the technical hurdles specific to their source systems. The BPM Application is based on extensive experience with SAP, Oracle, and J.D. Edwards ERP systems. The relevant functional reporting data in each source was identified and methodologies to extract this data were developed. For example, SAP uses pooled and clustered table structures, Oracle provides "flex" fields, and J.D. Edwards maintains address books in a special way. Each system contains unique characteristics that affect data mart building. The BPM Application addresses these source features. This inherent source system intelligence of the BPM Application sparesusers

105

from having to spend potentially hundreds of hours analyzing complex ERP and e-business systems.

In addition to speeding the extraction process, the ETL tool incorporates safeguards to
5   protect data integrity. As data comes across from the source system, the ETL tool looks for specific conditions. If these conditions are absent, the tool generates an error log and lists the missing data, simplifying system administration and trouble-shooting.

Transformation

10

Missing data, incomplete data, or inaccurate data can degrade the quality of a business performance management solution and substantially hinder the business results.

To generate consistently high data quality, the e-Applications ETL tool contains
15   transformation functions that format and integrate source data before it is stored in the BPM data mart. This process might involve any number of functions: restructuring data files, records, and fields; removing superfluous data; decoding and translating field values to enhance data; improving data readability; validating data; calculating new values from one or more source columns; simplifying data; and changing data types. The transformation
20   process will also reject records that do not satisfy business rules.

Once set up, the ETL process can run automatically according to the desired schedule. As part of the transformation process, the BPM Application may employ surrogate keys—that substitute for natural keys—to improve processing performance and reduce the volume of
25   data required to describe a particular data element. For instance, components of the BPM Application save space by converting text to integers and by generating composite keys, which combine several keys into one.

Data Loading

30

Once the source data has been transformed, the BPM Application loads it into the destination data marts and make the data available to users for analysis and reporting.

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The components of the BPM Application apply different updating rules to different tables depending on the nature of the component data. By tailoring the data-loading process to the data, the BPM Application updates information faster with less demand on the source

5   system. For instance, tables defined as "static" contain data that changes infrequently and therefore needs refreshing only on an ad hoc basis. Tables that require more frequent refreshing can be treated differently as well, according to the characteristics of their data. Users can do a complete refresh, a changed-data capture, or a slowly changing dimension.

10   The BPM Application also includes stop-recover strategy, which allows extraction jobs that have been interrupted to be restarted. This feature saves administrators time and helps ensure data integrity.

15   Pre-defined star schema data model optimized for reporting

The pre-defined star schema data model, which is optimized for reporting is labeled as "Star Schema" on Figure 30. Optimized for reporting, pre-defined star schema data models and packaged reports and analyses reflect the analytical requirements for important areas such

20   as Sales, Finance, and Inventory. By implementing shared dimensions that can be used across numerous data marts—and implementing them only once—IT reduces its workload, and provides consistent data and dimensions throughout the enterprise and cross-functional business reporting and analysis for end users.

25   Data Granularity

To solve a business problem, sometimes decision-makers want to see transaction details, not just higher level summaries. For this reason, the components of the BPM Application, which contain both relational and OLAP data, extract the most granular data from the

30   source ERP systems and use it to populate the data marts. Decision-makers can therefore easily access transaction-level detail and gain a micro view of the business issues at hand.

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Offering detailed granularity takes pressure off the source ERP system as well. Rather than query the production system every time they need to perform detailed analysis, decision makers simply query the components of the BPM Application and glean the insight they want.

5

Packaged and Fully Customizable Business Reports and Multidimensional Data Models

Packaged and fully customizable business reports and multidimensional data models,
10   labeled as "Catalog, Cubes, Reports" on Figure 30, reflect the information and KPIs needed to manage, measure, and improve business performance in each functional area.

Operational Framework

15

The operational framework of the BPM Application is labeled as "Operational Framework" on Figure 30. This operational framework is unique in that it reflects how the BPM system is productized. The operational framework turns the application into a product. The operational framework allows the user to:

20   • customize the BPM Application to reflect their unique ERP environment,
            • controls the operation of the application in a production environment, and
            • contains a component which includes stop-recover strategy, and
            • handles exceptions during data mart updates.

In addition to the above, the operational framework provides functionality that makes the
25   BPM System responsive to the variations of ERP implementations. he operational framework uses information stored in the operational framework schema to adjust the Business-driven extractions and source-to-target mappings business rules to reflect the requirements of the particular ERP implementation. The operational framework uses information stored in the operational framework schema to determine the status of the
30   extracts that load the mart and to determine what new data needs to be extracted to the mart.

Slowly Changing Dimensions and History Preservation

108

To ensure that an integrated data warehouse accurately captures changes to dimensions that vary infrequently—product hierarchies, sales regions, and so on—the BPM Application accommodates slowly changing dimensions.

5   This feature is one example of best warehousing practices, and offers two primary benefits. First, it allows users to go back and find out what was going on at a point in corporate history. In other words, although employees may have moved or sales territories may have been redrawn, the system will accurately present information about these slowly changing dimensions as they existed at the time of interest. This allows users to derive consistent,

10   repeatable results, solidifying the value of their decision support system by preserving history.

Second, users can see all values or changes over time. This capability furnishes the insight to uncover longer-term trends and business impacts. If users have incomplete historical

15   information, they can end up making improper assumptions and compromising the quality of their decisions. Whereas ERP systems typically archive all but the most recent year or two's worth of data without access to supporting details, the BPM Application allows users to dig into an issue's past several years or more to gain revealing perspectives about its present. This trend-analysis capability is an e-business imperative, allowing companies to

20   track the impact of decisions over time.

An Example of Slowly Changing-Dimensions

25   In the BPM Application, if a sales person transfers to a different region in mid year, the BPM data marts will allow an organization to record the move and reflect the change in the database. Without record of this slowly changing dimension, a year-end revenue summary by region would allocate their entire year's sales to the new regional manager, overstating their accomplishments and understating the previous manager's performance. Companies

30   that make decisions based on this type of misleading information can end up making incorrect assumptions and that can result in costly mistakes.

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With slowly changing dimensions, the revenue that the sales person generated before their departure will properly accrue to the previous regional sales manager, and the revenue that they generate after the move will be credited to the new manager. Over time, certain dimensions—employees, products, and customers—will change, and the BPM Application,

5   by creating another dimension record, has the flexibility to accommodate these changes and produce an accurate view of business performance.

The BPM Application handles slowly changing dimensions so that the integrated data warehouse accurately captures infrequent but important data changes. So users can rely on

10   the data's integrity at all times. (See Figure 10).

Changed-Data Capture

The BPM Application also includes changed-data capture, the capacity to periodically

15   update the data marts with current information without rebuilding them from the ground up. Another best warehousing practice, changed-data capture detects new, modified, or deleted records in source systems and updates the BPM data marts with those changes.

20   An Approach to Changed-Data Capture

To vastly improve updating speed, the BPM Application splits the changed-data capture function into two. One inserts new data incrementally in bulk, a quick and efficient approach that eases the pressure on processing resources. The other step updates changes to

25   existing data, a process that involves going into the database, finding the modified row, updating it, and then saving the change. Given that changes are less voluminous than new data, the BPM Application handles the majority of updating with the more efficient and speedier process. Updating can therefore be conducted successfully even in the face of continually shrinking update windows.

30
To further its efficiency, the BPM Application looks only at the data that has changed in the ERP system. Recognizing the date and time of the last update, the e-Applications ETL tool

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requests only records from that update forward. Asking what records have changed and determining whether the changed records are of interest filters this subset further. This approach demands far fewer CPU resources than would be required to extract all the ERP data, to compare it to the data mart, and to load the difference—an unwieldy process that

5 would involve examining every row in the ERP system. Consequently, changed-data capture improves system performance and speeds updates.

Changed-data capture allows users to periodically update data marts without reloading them from scratch. (See Figure 11).

10

Simplifying Configuration

The BPM system Console employs easy-to-use configuration parameters to help users tailor components of the BPM Application to their environment.

15

If the user's company is like most, the user likely customized their SAP, Oracle, or J.D. Edwards source system. If so, their hierarchies, hierarchy types, status codes, charts of accounts, exchange rates types, and other fields may differ from the source system defaults. The BPM system Console has parameters which help users configure the BPM Application

20 to reflect these changes. This out-of-the-box convenience saves a user effort, speeds configuration, and delivers business performance management value that much faster.

The BPM system Console enables users to augment the BPM Application to reflect their particular implementation of the BPM Application system through configuration

25 parameters. (See Figure 13).

The BPM system Console guides users through adding new components of the BPM Application and ensures that the new ones are synchronized properly. As well, the BPM system Console matches the configuration to the user's target database and equipment.

30 Whether the user uses Oracle RBDMS or Microsoft SQL Server on NT or Unix platforms, the BPM system Console will tailor its implementation to the user's physical environment.

111

Enhanced Production Control

The BPM system Console enables users to import historical ERP data at a pace convenient to their business. This initial load job can take a long time, a potential problem if users
5 attempt to import all this data during a single extended window. Using the BPM system Console, however, users can schedule the loading to occur in phases—which users set—and populate the marts during slow network activity periods. This convenience avoids saddling users with degraded network performance while the loading occurs.

10 Users can also use the BPM system Console to simplify the ongoing extraction, transformation, and loading processes. It will help users sequence jobs and determine which are to run, what data they are to extract, and when they are to run (i.e. date ranges).

The BPM system Console will also enable users to run ad hoc jobs or put scheduled jobs on
15 hold.

Moreover, the BPM system Console equips users to maintain their system in top form. In the BPM Application, administrative tables within the BPM Application relational database store information pertaining to the system's operation. The BPM system Console uses this
20 information to generate job status reports and error reports, giving users a firm handle on their system at all times.

The BPM System Console

25

The engine behind the BPM Application resides within the BPM system Console, an easy-to-use production control environment that simplifies the up front installation, configuration, and loading of the BPM Application. It also makes maintaining the marts easier once they are up and running.

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112

Administrators can use the BPM system Console to set extraction sequences, and establish dependencies and priorities. It also enables organizations to implement co-ordinated analytic applications incrementally and manage them centrally.

5   Labeled as "Console" on Figure 30, the BPM system Console is really part of the operational framework. The BPM system Console provides intelligent ETL job control for *ad hoc* or scheduled data loads, sequences extraction jobs, and defines extract dates. It allows you set configuration parameters so that the data warehouse reflects ERP site-specific configurations. The BPM system Console manages ETL processes automatically

10   (See Figure 12).

Administrative Reporting

In addition to the functionality afforded by the BPM system Console, the BPM Application

15   administrative reporting lets IT:

Track extraction history, including:
- tables
- start & end date, and elapsed time

20   - extraction from & to date
- row counts
- errors

Track errors, including:

25   - extraction object
- error count
- error type
- severity
- date

30   - time

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The BPM Application: An Out-of-the-Box Integrated Data Warehousing Solution

By packaging the BPM Application into a series of departmentally specific, coordinated analytic applications, the BPM Application enables users to build an enterprise view of their

5   organization incrementally and strategically. The benefits? Users promptly derive the business insight they need from the packaged reports and analyses provided, and IT departments escape the high-labor, high-cost, high-risk of many data ware-house and data mart practices, freeing time to refocus on other priorities.

10   With the BPM Application, users can build an enterprise view of their organization. The outcome: users quickly derive the business insight they need from packaged reports and analyses provided, and IT departments are freed from the high labor and high costs associated with many data warehouse and data mart initiatives (See Figure 2).

15   Examples of Components of the BPM Application

The BPM Application contains a number of packaged reports that reflect the business requirements for important areas such as Finance, Sales, and Inventory.

20   One embodiment the BPM Application, Financial Analysis e-Application (See Figure 3), speeds reconciliations, period-end closings, and financial reporting and distribution by giving managers the information they need to analyze income statements, balance sheets, cash flows, key financial ratios, or currency rate conversions.

25   Types of financial reports available to end users include:
       - Overview reports, such as income statement and balance sheet
       - Income statement analysis
       - Balance sheet analysis
       - Budget analysis
30   - Analysis by legal entity
       - Analysis by management entity
       - Operational reports, such as cost center and general ledger analysis

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Another embodiment of the BPM Application, Sales Analysis e-Application (See Figure 5), allows users to analyze forecast accuracy and sales volume, calculate average deal size, and examine revenues and profitability, and so on.

Types of sales reports available to end users include:
- Reports by customer, such as customer sales ranking or customer sales by region
- Reports by product, such as order summary, or product sales ranking
- Reports by sales organization, such as orders by reps or by country
- Reports by profit
- Reports by quantity sold

Another embodiment of the BPM Application, Inventory Analysis Suite of e-Applications (See Figure 4), provides inventory managers with the information they need to understand supply chains and assess demand forecasting accuracy, inventory carrying costs, supplier performance, and warehouse performance, and so on.

Types of inventory reports available to end users include:
- Inventory performance, such as stock level overview or profile of plants by stock level
- Demand analysis, such as stock usage comparisons, or materials profile of demand
- Material tracking
- Vendor analysis by stock movements
- Resource activity, such as activity comparisons or plant/employee analysis

Establishing Business Content

The heart of the BPM Application lies in the quality of its business content. It is the business content that gives end users the ability to answer complicated questions involving numerous business dimensions and immediately gain the insight required to make strategic decisions. The basis of this content combines well-established business intelligence

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expertise and proven best practices—strategies which have helped many of the world's leading companies generate maximum decision-making value from their data.

5 To ensure that the BPM Application is business-ready out of the box, comprehensive information about the business questions that users in specific functional areas face was gathered. Clients, professional associations, industry consultants, analysts, and subject matter experts—people who understand the challenges and the opportunities prevalent in each functional area—were extensively interviewed.

10 From the research, hundreds of function-specific questions common to business people in virtually all industries were identified. In other words, someone who manages a sales force for a pharmaceutical company will face many of the same business challenges as someone who manages a sales force at a textile company or a semiconductor company. After assembling and validating these questions, they were deconstructed each into business

15 measures, dimensions, and attributes—the building blocks of a star schema data mart. Business rules that govern how to derive measures such as "net profit margin" or "inventory balances"— measures that do not appear in ERP systems and must be created—were also established.

20 The processes underlying each component of the BPM Application was also explored and how companies managed their workflows within each functional area was determined. Questions as strategic, tactical, or operational were categorised and then the information needs associated with each category was established. For example, what level of data granularity do users require? How much history do they need? Five years? Three years?

25 How often do they need to refresh data? Do they have to know what happened yesterday to answer a given business question or can they wait until the end of the week?

Tailored to End-Users

30 A key aspect of establishing business content involved determining how to present information to different types of users. For instance, sales people who spend considerable

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time on the road with their laptops need OLAP cubes that will give them sales history information about their clients and others and allow them to compare performance and purchasing patterns. Senior executives, on the other hand, need high-level, visual perspectives of corporate performance. Understanding these distinctions permitted us to

5   build a solution that delivers business performance management value to users across the enterprise.

Using an iterative design-and-build process, the solutions were tested in joint application development sessions, workshops, and client beta projects, continually refining the BPM

10 Application until they delivered optimum value. Ultimately, 50 per cent of development effort was devoted to collecting and refining the business content and ensuring that the BPM Application gives users the analysis and reporting capabilities they need to excel.

Building Coordinated Data Marts

15

Using best warehousing practices to construct the BPM Application data marts, the BPM Application is designed for the enterprise and deployable by department, an approach that delivers value to end users and achieves enterprise-wide decision-making cohesion as quickly as possible. The BPM Application was created to serve as the information

20 backbone of an organization. By building this backbone section by section and tying functional areas together with common shared dimensions, organizations generate a powerful decision-making support infrastructure that can grow as they grow.

Common Dimensions

25

Traditional stovepipe data marts may serve certain departmental decision-making needs, but they fail to offer all-important enterprise-wide views. By incorporating common dimensions, the BPM Application allows knowledge workers to share information across departments and gain important decision-making synergies. Based on common terms and

30 common information, common dimensions ensure that users in all departments or functional areas approach business issues using the same references.

Each component of the BPM Application has been designed from careful consideration of the business dimensions or measures that are common to each functional area of the business. Based on common terms and common information, these dimensions ensure that users in all departments approach business issues using the same references (See Figure 6).

5

For example, the dimension "customer" would mean precisely the same thing to a sales manager as it would to an inventory warehouse manager or a finance vice president. Without conforming dimensions, each department would likely develop different definitions, hierarchies, terms, and dimensions for many of the same business measures, an

10   inefficiency that can sidetrack productivity and hamper decision-making.

Incorporating common dimensions means IT builds the tables only once, and less redundancy because data is stored once, and shorter time to update because data is loaded once. Moreover, multiple star schemas can leverage the shared dimensions to reduce

15   update time and resources. Updates occur once, not five times, which speeds the update process. In addition, common dimensions save disk space, reduce redundancy, and ensure that data is consistent from one mart to the next.

20   Star Schema Design Speeds Queries

The BPM data marts perform business performance management much faster than ERP systems, which distribute data fields among thousands of tables. Finding the fields that describe a given query in an ERP system often requires joining copious tables, a time-

25   consuming step that slows analysis and drains database processing power. Optimized for high-speed analysis and reporting, the BPM Application incorporates a star schema architecture that accelerates query performance and produces fast business insight.

The Star Schema

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Star schema architectures contain two types of tables—fact tables and dimension tables. A fact table comprises the transaction history associated with each activity being modeled.

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These fact tables store the numerical measurements of the business and include an ID field for each dimension that they represent. For instance, a Sales fact table might include fields for Customer ID, Sales-person ID, Product ID, Quantity Sold, Discount, and Total Amount, etc. The fact table is linked to several dimension tables that qualitatively describe the fact

5   table fields in more detail. For instance, the Salesperson ID dimension table might include Salesperson ID, Salesperson Name, Phone Number, Sales Office, and Employee Number, and so on.

This star structure, with the fact tables surrounded by satellite dimension tables, allows

10   users to drill down quickly into the data to uncover correlations between dimensions and elements in the fact table. Forming queries involves a set of simple one-way joins, from the fact table to each dimension, rather than complex multi-step joins through multiple levels of tables. Users get the information they need quickly, allowing them to solve business problems, spot trends, or act on opportunities.

15

The BPM Application evaluates components of the end-to-end solution organizations need and translates this information into data models that reflect the analysis and reporting capabilities organizations need based on the business information needs (See Figures 7, 9 and 8).

20

Business-Ready BPM Applications

Not only does the BPM Application capture the right business content, they come with

25   packaged reports, OLAP cubes, and catalogs that offer out-of-the-box business insight. Users can also generate an array of reports—OLAP, relational, standard, ad hoc, time trend—to meet all information requirements, for all positions in the organization. Moreover, these reports are also easy to change. Decision makers can easily adapt them to manage, measure, and improve business performance in their functional areas, greatly

30   reducing the burden on IT. Either way, knowledge workers gain key business insight and derive immediate productivity gains.

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Furthermore, the BPM Application, which can be extended to include scorecarding and visualizations, provide the right report for the right users on the client platform of choice: Windows, Excel, or Web browser, whether users are LAN-based or working remotely.

5

Scalability

Components of the BPM Application are also designed for maximum scalability. Users can add new functional area data marts to further enhance their enterprise analysis and
10 reporting. Users can broaden the source data collection points beyond their ERP system to gain a more complete view of the user's enterprise and customer relationships. Organizations can also increase the number of users that the system supports, accommodating corporate expansion without the growing pains.

15 Other components can be added to the BPM Application.

120

e-Applications: An Applications Framework for Maintaining an Analytical View of the
Entire Enterprise

Using business-ready, packaged analytical and reporting environments, called
5   *e-Applications* (Figure 14), Cognos already has woven sales finance, and inventory
applications into an enterprise business backbone. The e-Applications combine the best
principles of business and "data warehousing" in an operational framework that is aimed at
giving business users the wherewithal to answer pressing questions while allowing
technologists to escape the high-labor, low-yield cycle of many data warehouse and data
10   mart practices. Cognos has delivered the ability to quickly implement and centrally manage
data marts that have common metrics and conforming dimensions, and thereby help
enterprises to "snap in" Cognos' current and emerging applications and use them as piece
parts to create other advanced applications. With e-Applications, Cognos has become a
one-stop supplier that has delivered a method that can keep the entire enterprise and
15   extended-enterprise team working in concert.

Cognos has designed these applications to draw and transform data from a variety of
sources; the company pays particular attention to easing the burden of working with SAP,
Oracle Applications, and J.D. Edwards Enterprise Resource Planning (ERP) systems.
20   Cognos officials say that applications for other operational and e-Business sources will soon
follow, including an e-Commerce Analysis e-Application (currently in development).

The system delivers packaged, extensible applications that will enable enterprises to
maintain a 360 degree analytical view of the business, including operations, finance,
25   customer relations, and supply side activities. Enterprises and value added resellers (VARs)
can extend these applications in numerous ways using the Cognos e-Application
Development Kit (ADK) to evolve an ever-expanding view. Using common dimensions
(such as customer and location) and a shared Operational Framework as the primary
integration points between applications, an enterprise can create a crossfunctional view of
30   the business as well as underpin additional Cognos analytic applications.

121

The strategy is well matched to current and emerging e-Business pain-points. Enterprises today must compete on the traditional—but changing—business front while trying to add new e-Business differentiators. Moreover, many of these enterprises are in the midst of buying or creating an increasing number of back and front-office applications, not only to

5   run the business but also to capture the organization's data assets. Enterprises want to tap the information within all of these systems—to get a clearer understanding of the entire business and for making better decisions.

Enterprises also are now grappling with understanding how "getting closer to customers"

10   affects the supply chain, and they can expect the continual introduction of other requirements. Cognos shows every indication that it can keep its customers ahead of the e-Business demand curve with powerful applications that reduce technologists' implementation and maintenance burden and the time to success for corporate and departmental decision-makers.

15

Thinking out of the Box

Using its multidimensional analysis software, PowerPlay, and its query tool, Impromptu, in

20   conjunction with relational schemes and online analytical processing (OLAP) models, Cognos has created out-of-the-box data mart applications. These applications contain defined extractions, data models, and proven (best practices) business content. Built upon Cognos' unique Operational Framework and robust production environment, e-Applications display business content through captured business metrics, as well as a full suite of key

25   performance indicators (KPIs), reports, and analyses. Other viewing options include scorecard and visualization techniques. The numerous reports included with the e-Applications can sene as a departure point for in-house customization. Enterprises also can extend the system's underlying data structure and multidimensional cubes.

30   Of particular note is the Operational Framework, which runs on Windows NT and major Unix platforms and is designed to combine ease-of-use and technical rigor. Creating a production control environment, the framework functions as a hub for administrators to

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extend Cognos' data models, data transformations, and KPIs; it also schedules updates to either relational or multidimensional data.

With the framework, administrators can schedule extractions and cube creation and dictate

5 dependencies and priorities. The framework supports best warehousing practices, including changed data capture, a technique that allows the enterprise to refresh the analytical structure with discrete changes—rather than forcing the enterprise into a time-consuming, batch-oriented refreshment cycle.

10 The framework also supports slowly changing dimensions, a common occurrence in decision support because many systems track and analyze history. Dimensions such as sales regions shift across time; if handled incorrectly, the changes will produce analytic inaccuracies. Slowly changing dimensions can also undermine performance-related aggregation strategies. The framework also permits the enterprise to adopt a strategy of

15 building data marts (whether based on a relational or multidimensional database model) independently and managing them centrally. It is the enterprise, not the tool, that dictates the strategy.

This infrastructure flexibility should not be underestimated; it reduces time and

20 considerable expense in both implementation and administration. Enterprises deliberating over the build-versus-buy issue for data marts finally have a very persuasive technological/business argument for buying a packaged application. Moreover, Cognos underscores its commitment to flexibility on the distribution side, as well; it permits enterprises to reach employees, partners, customers, and suppliers via client-saner and

25 across the Internet, intranets, and extranets.

Where e-Applications Will Be Most Useful

30 Numerous factors are driving enterprises of all sizes to implement various types of analysis and reporting systems. From a "macro perspective," Cognos' e-Applications and their Operational Framework will be found valuable at enterprises charged with:

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- Reducing the guesswork needed to understand, attract, manage, and keep best customers;

- Attributing costs of revenue-enhancing initiatives across products, services, customers, and assets;

5

- Engaging with partners on the extranet at an analytically enhanced speed and level; and

- Increasing the speed at which the enterprise is able to meet these challenges via analytic applications.

10

Cognos e-Applications provide options for organizations to implement analytical solutions for individual departments, as an incremental approach to an enterprise solution, or as an integrated whole.

15   The ability to garner consistency across the applications is particularly important at this time because many enterprises now realize that they need to grasp the business implications contained within third-party applications such as ERP and Sales Force Automation (SFA).

For organizations facing these challenges, e-Applications introduce two immediate benefits.

20   First, many operations managers acknowledge that they need something akin to a multidimensional view of information from their ERP and e-Business systems—but admit they are not quite certain where to begin. e-Applications contain this information. Second, e-Applications also contain a very clear method for moving forward to complement an enterprise's existing operational systems. Using the same methods, the enterprise can add

25   functionality incrementally to extend earlier e-Applications.

From another perspective, many enterprises have built multi-million-dollar data warehouses, but these online repositories of historical information typically supply information to only a relatively few members of the enterprise. Cognos e-Applications

30   provide a complementary solution to existing data warehousing projects. With its non-intrusive environment, Cognos can increase the population of business users benefiting from the data warehouse investment and increase the value of that investment. As an

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extension to a data warehouse, e-Applications will protect the integrity of the data warehouse for its specialist users.

Cognos e-Applications eliminate the many synchronization, consistency, and
5   misinformation problems that have plagued enterprises trying to build data marts independently across various business units. Moreover, e-Applications combat "scope creep," a common and expensive problem when an enterprise tries to use a methodology to understand business requirements and map these needs to a data warehouse or data mart. If done poorly, the enterprise frequently has to revisit "the solution" and consequently takes
10   more time and pays more money than anticipated.

Equally important, e-Applications eliminate the need to evaluate numerous technology piece-parts, substituting instead software parts that Cognos, a trusted supplier, has "calibrated" to work together. Thus, e-Applications help eliminate the lengthy evaluation
15   and testing cycles for many products and provide a single vendor for support and interaction.

In addition to ensuring that all of the technology components work together, Cognos has taken many steps out of the development process for designing and building an analytical
20   application/data mart/warehouse. Rather than focusing on early development steps such as data modeling and source-to-target mappings, the enterprise or business unit can concentrate on strategic requirements.

These difficulties will become more pronounced as e-Business quickens the pace at which
25   enterprises fail or succeed. With traditional needs-assessment methodologies, the business may evolve before the project reaches completion. Preparation time can often exceed the life span (and value) of the application. In this context, one of e-Applications' benefits is the ability to incorporate changes to the analytical infrastructure as the business changes. In other words, Cognos is delivering the ability to get rolling quickly—similar to changing the
30   tires of a car while it is moving.

125

An Analytical Framework

To qualify its offering as an analytical application, not just a tool with an applications veneer, a supplier should aim to reduce the enterprise experience of complexity without
5 diluting the power of the solution. Analytical applications should deliver the majority of the following requirements:

- Vertical or horizontal focus via business logic, calculations, models, and transformations, etc.;

10
- Extensibility, allowing the enterprise to add, for example, its own logic to increase the value of the application;

- Internet support, for both analysis (where appropriate) and distribution;

15
- Upgradeability, placing the burden on the supplier for making sure that the customer is never forced to change applications to take advantage of new functionality; and

- KPIs that distill complex information into a simple metric.

20
Although Cognos clearly satisfies all of the above conditions and has aimed e-Applications at delivering ease-of-use in the context of business users, it has one other differentiator in the analytical applications space. Cognos supplies an administrator cockpit, called the e-Applications Console, which simplifies the administration and maintenance of numerous
25 processes. These processes include managing tasks that are normally the province of extraction, transformation, and loading (ETL) environments found in the best, generally data-driven, data mart and data warehouse environments.

Development Environment

30
Although the e-Applications for sales, finance, and inventory applications will dramatically speed up implementation, enterprises will always have unique blends of source data that the

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applications must absorb. The e-Applications contain the extractions and source-to-target mappings for SAP, Oracle, and J.D. Edwards ERP systems. The preconfigured ETL transformations alone will spare the enterprise from having to conduct in-depth source system analysis of complex ERP and e-Business systems. Using codeless ETL processes,

5   enterprise can extend these extractions to other ERP data and external or non-ERP data.

Moreover, e-Applications leverage Cognos data mart creation technology, a source and target-agnostic environment that translates combinations of source data into optimized dimensional structures. Administrators can prompt the tool to build star schema (a

10   multidimensional model in a relational database), Microsoft SQL Server OLAP Services-based dimensional models, or PowerPlay PowerCubes— Cognos' OLAP cubes.

Cognos has integrated e-Applications with many of its other BI technologies, thus increasing the value of the applications by extending access to them. Because

15   e-Applications contain PowerCubes, business users will be able to leverage predefined and customized business analysis and reports that are based on Cognos BI software. The ight integration between the Cognos tools allows business users to examine summary-level data in PowerPlay and drill for the details in relational data.

20   The e-Applications support the major relational database management systems (RDBMSs), ODBC sources, fixed record files, and text files as sources—and Oracle and SQL Server as targets.

Beyond ETL: Maintaining Quality

25
Analytically oriented production environments require precision scrutiny as a way of guaranteeing that decision-makers are guiding the enterprise with accurate and current information. The automatic administration functions of the e-Applications Console watch the system for errors, validate restarts and job completions, and track the history of every

30   job. Unlike many other ETL/management environments, the e-Applications Console gives the enterprise an exceptionally detailed level of control. For example, many environments recognize whether or not a specific data refreshment has completed, but few allow the

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enterprise to forgo the rerunning of an update with the expectation that the system will intelligently "catch up" on its next scheduled run.

In addition to many bread-and-butter ETL functions, the e-Applications identify what tables must be up-dated and the sequence in which the system should perform the updates. The e-Applications also identify which tables are static—i.e., do not need to change; which need complete refreshing; and which should be updated incrementally. As noted previously, the automatic handling of slowly changing dimensions—e.g., alterations to the sales organization—can spare enterprises from analytic inaccuracy.

e-Applications

Sales Analysis e-Application

The Sales Analysis e-Application is designed to help executives, senior managers, line managers, and operational personnel assess the organization's sales performance, as well as examine the deeply related issues of customer trends and satisfaction, product performance, and organization effectiveness. The software, for example, can help the enterprise discern the characteristics of success by locating customers that have the highest margin contributions and pinning down their preferred distribution channel. As such, the Sales Analysis e-Application can serve as the linchpin of Customer Relationship Management (CRM) applications. From the perspective of product sales performance, the system can zero-in on purchase quantity details, and it can help with supplier comparisons.

The Sales Analysis e-Application can also help to measure and maximize the use of various channels to reduce costs. Business users can drill into the details of various channels, and they can examine performance drivers such as seasonality and quantities.
A sampler of the KPIs included in the Sales Analysis e-Application includes the size of the customer base and changes affecting it over time; average revenue per customer; and customers grouped according to their revenue, volume, and margin contribution. Customer satisfaction Is target return patterns by region, across time, correlated with on-time delivery.

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Financial Analysis e-Application

A predominate characteristic of e-Business is that it places organizations under increased

5   pressure to grasp the financial implications of each business practice. Because these

businesses face thinning margins, they should be able to understand the true cost of

interacting with their customers, not only on a single channel but also on all channels.

Moreover, they should also factor expenses across the supply chain and through the

distribution channel.

10

From a tactical perspective, Financial Analysis e-Application shortens the reconciliation

cycle and helps overcome one of the most serious difficulties in most organizations: the

prompt close. In addition to speeding up the reporting and distribution cycle, the software

is aimed at deep examinations of what might be called seven strategic keys to an

15   organization's financial health: Income Statement, Profit, Balance Sheet, Financial Ratios,

Budget Reviews, Business Unit Performance, and Overview Reporting. Given the nature of

the Financial Analysis e-Application, it contains KPIs aimed at these areas of strategic

measurement.

20   While space prohibits a detailed exploration of the entire Financial Analysis e-Application,

the Income Statement can serve as an exemplar. Devised to help examine trends and time

comparisons as well as budget variances, the software can help trace shifts in cost structures

at an operational level over time. Moreover, it can measure performance against plan by

division, geography, and business unit.

25

Inventory Analysis Suite e-Applications

With the emergence of e-Business as a driving competitive force, organizations should

optimize their understanding of the deep relationship among customer relationships,

30   financial health, and the supply chain. Toward that goal, the Inventory Analysis Suite

e-Applications analyze warehouse performance, material movement, material classes,

physical inventory, and forecasts to actuals. These supply chain measures and the detail

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behind them contribute to customer satisfaction by, for example, helping the enterprise meet demand; and they contribute to cash flow optimization via a thorough grasp of inventory investments.

5   The Inventory Analysis Suite e-Applications can answer many detailed questions, including the average corporate investment in stock, broken down by location and compared to previous periods.

       EIs include overviews of stock levels, valuations, and fluctuations; stock movements; and

10   stock coverage

WHAT IS CLAIMED IS:

1.   A data model for representing an organization having a plurality of groups of functions, the data model comprising:

        a plurality of preset groups of tables, each group of tables representing each group of functions; and

        preset joins connecting the tables indicating interrelation of the tables to represent the relationship among the functions.

2.   The data model as claimed in claim 1, wherein each group of tables having one or more tables, each table describing one or more preset attributes of the respective function.

3.   The data model as claimed in claim 2, wherein the present joins are provided based on the attributes.

4.   The data model as claimed in claim 1, wherein each group of tables is associated with a data mart of the respective function.

5.   A method for creating a data model for representing an organization having a plurality of groups of functions, the method comprising steps of:

        obtaining attributes of the functions from the organization by presenting a predetermined set of questions;

        analysing the attributes of the functions; and

        creating a data model based on the analysis.

6.   The method as claimed in claim 5, wherein the analysing step comprises a step of identifying relationship among the attributes.

7.   The method as claimed in claim 6, wherein the creating step comprises steps of:

        grouping the attributes based on the identified relationship into tables; and

        joining the tables to represent the identified relationship.

8.   The method as claimed in claim 5 further comprising steps of:

        extracting data from multiple data marts; and

        loading the extracted data into the data model.

9.   The method as claimed in claim 8 further comprising a step of:

        transforming the extracted data into a form loadable into the data model.

10. The method as claimed in claim 5, wherein the method comprises steps of:

determining the set of business questions that establish the best business practices for managing business performance within an organization having a plurality of groups of functions, determining and obtaining the Business Performance Management measures, key performance indicators and attributes from those questions through a process of business question decomposition.

11. A console for managing a data model for representing an organization having a plurality of groups of functions, the console comprising:

means for installing a predefined data model; and

means for setting a sequence of extraction of information from each function to load the data model.

12. A method for analysing an organization having a plurality of groups of functions, the method comprising steps of:

preparing a data model representing interrelation of the groups of functions; and

obtaining information from the data model using the interrelation among the groups of functions.

13. The method as claimed in claim 12, wherein the preparing step comprises a steps of:

obtaining attributes of each group of functions;

analysing interrelation of the attributes of the functions; and

creating the data model based on the analysis.

14. A method for creating a report for use by an organization having a plurality of groups of functions, the method comprising steps of:

accessing a data model representing interrelation of the functions;

obtaining information from the data model; and

compiling a report based on the obtained information.

15. The method as claimed in claim 14, wherein the accessing step comprises a step of using a predefined form of a report.

16. The method as claimed in claim 14, wherein the obtaining step comprises a step of combining information from different groups of functions.

17. A business performance management model for providing backbone for business performance management for an organization having a plurality of functions, the business performance management model comprising:

a set of functional areas of analysis, each functional area corresponding to a group of functions of the organization, and having one or more elements for representing the corresponding functions;

a set of dimensions qualitatively describing elements of the functional areas; and

relation indications indicating interrelation among the functional areas and the dimensions.

18. The business performance management model as claimed in claim 17, wherein the relation indications are provided so that common dimensions are shared by multiple function areas.

19. The business performance management model as claimed in claim 17, wherein the elements of each functional area include key performance indicators, measures, dimension identifications and/or attributes.

20. The business performance management model as claimed in claim 17, wherein the functional areas represent fundamental functions of the organization for analysing business performance of the organization.

21. A method for creating a business performance management model for providing backbone for business performance management for an organization having a plurality of functions, the method comprising steps of:

analysing functions of multiple organizations;

identifying a set of functional areas of analysis which are useful to analyse business performance of the organizations, each functional area having one or more elements for representing the corresponding functions;

identifying a set of dimensions qualitatively describing elements of the functional areas; and

providing interrelation among the functional areas and the dimensions.

22. The method as claimed in claim 21, wherein the step of providing interrelation comprises steps of:

determining common dimensions used by multiple functional areas;

providing relation indications between the functional areas and dimensions so that each common dimension is shared by its respective multiple function areas.

23. The method as claimed in claim 21, wherein the step of analysing comprises a step of analysing questions to be answered to manage the business performance of the organizations.

24. A data model constructed based on the business performance management model claimed in claim 21.

25. A business performance management application for managing business performance of an organization having a plurality of functions, the business performance management application comprising:

a predefined data model representing the functions of the organization;

extracting means for extracting and mapping source data into the data model;

reporting means for providing reports on data stored in the data model; and

an operational framework for providing control of the operation of the data mode, the extracting means and the reporting means.

26. The business performance management application as claimed in claim 25, wherein the extracting means comprises an Extract, Transform and Load (ETL) software program for extracting data from an enterprise resource planning system, transforming the data and loading the data into the data model.

27. The business performance management application as claimed in claim 25, wherein the operational framework couples the data mode, the extracting means and the reporting means as a single product.

28. The business performance management application as claimed in claim 25, wherein the operational framework has a customizing function to allow users to customize the business performance management application.

29. The business performance management application as claimed in claim 25, wherein the operational framework has a console for users to customize the business performance management application.

Rapid Results

Figure 1.

Cognos e-Applications: a holistic view of your enterprise

Target View of Enterprise	e-Commerce	Web-log Analysis	Sales Force Automations	Sales	Finance	Inventory	Procurement	e-Procurement

CRM Analytics

Enterprise Performance Management

SCM Analytics

Figure 2.

Figure 4

Figure 3.

Figure 5

Figure 6

Financial Analysis Schema

Figure 9

Inventory Analysis Suite Schema

Figure 8

Sales Analysis Schema

Figure 7

Slowly Changing Dimensions

Figure 10

insert new data incrementally

update with changed data

Figure 11

Figure 13

Figure 12

Source Data		Finance Sales Inventory Purchasing e-Commerce ...and more to come	Decision-makers Executives Remote Users Partners Suppliers Customers
Application Data Assets	Pre-configured Data Marts	Pre-packaged Business Metrics and KPIs	For the Extended Enterprise

ERP
· SAP
· J.D. Edwards
· Oracle Apps
· ...
e-Business
· e-Commerce
· ...
	Production-Ready
	· Reduce time-to-success
	· Reduce maintenance
	· Automatic admin.
	  functions
	· Shared dimensions
		Business-Ready
		· Numerous reports
		  and analyses
		· Deep business
		  content
		· Consistent business
		  answers
			e-Ready
			· Intranet
			· Extranet
			· Internet

Figure 14

COST CENTER
- # COST CENTER SID
- · COST CENTER CODE
- · CHANGED DATE
- · CONTROLLING AREA KEY CODE
- · CONTROLLING AREA NAME
- o COST CENTER DEPARTMENT CODE
- o COST CENTER DEPARTMENT NAME
- o COST CENTER DESCRIPTION
- o COST CENTER LEAF LEVEL NUMBER
- o COST CENTER MANAGER NAME
- · COST CENTER NAME
- o COST CENTER RESPONSIBLE EXECU
- · CREATED DATE
- · LOCAL CURRENCY CODE
- o REGION CODE
- o REGION NAME
- · VALID FROM DATE
- · VALID TO DATE
- o COST CENTER LEVEL 1 CODE
- o COST CENTER LEVEL 2 CODE

FISCAL (center for)
- # FISCAL PERIOD SID
- · FISCAL VARIANT CODE
- · FISCAL YEAR VALUE
- · FISCAL QUARTER
- · POSTING PERIOD NUMBER
- · FISCAL DATE
- · POSTING PERIOD COUNT

AP ACTIVITY DOCUMENT
- # AP ACTIVITY DOCUMENT SID
- o DOCUMENT COMPANY CODE
- · TRANSACTION TYPE CODE
- · DOCUMENT NUMBER
- o DOCUMENT ITEM NUMBER
- · BATCH TYPE CODE
- · BATCH NUMBER
- o ADJUSTMENT REASON CODE
- u PAYMENT TERM CODE
- o PAYMENT INSTRUMENT CODE
- o TAXATION AUTHORITY CODE
- o DOCUMENT OPEN DATE
- · PAYMENT DUE DATE
- o DISCOUNT BEFORE DATE
- o PAYMENT OR ADJUSTMENT DATE
- o INVOICE CLEARED DATE
- · GROUP CURRENCY CODE
- · LOCAL CURRENCY CODE
- o DOCUMENT CURRENCY CODE
- o GROUP TO LOCAL EXCHANGE RATE
- o LOCAL TO DOCUMENT EXCHANGE RATE
- o MATCHING DOCUMENT TYPE CODE
- o MATCHING DOCUMENT NUMBER
- o MATCHING DOCUMENT ITEM NUMBER
- o MM DOCUMENT COMPANY CODE
- o MM DOCUMENT TYPE CODE
- o MM DOCUMENT NUMBER
- o MM DOCUMENT ITEM NUMBER
- o PO DOCUMENT COMPANY CODE
- o PO DOCUMENT TYPE CODE
- o PO DOCUMENT NUMBER
- o PO DOCUMENT LINE NUMBER
- o ADJUSTMENT REASON DESCRIPTION
- o PAYMENT TERM DESCRIPTION
- o PAYMENT INSTRUMENT DESCRIPTION
- o TAXATION AUTHORITY DESCRIPTION
- o OPEN INDICATOR
- o INCLUDED IN SUMMARY INDICATOR
- · CREATED DATE
- · CHANGED DATE

TIME
- # TIME SID
- · CALENDAR DATE
- · CALENDAR WEEKDAY
- · CALENDAR DAY
- · CALENDAR WEEK
- · CALENDAR MONTH
- · CALENDAR FISCAL PERIOD NUMBER
- · CALENDAR YEAR
- · CALENDAR QUARTER

ORGANIZATION
- o FISCAL VARIANT CODE
- o ORGANIZATION CATEGORY CODE
- o ORGANIZATION CATEGORY DESCRIPTION
- o ORGANIZATION HIERARCHY LEVEL NUMBER
- o LEVEL1 ORGANIZATION NAME
- o LEVEL2 ORGANIZATION NAME
- o LEVEL3 ORGANIZATION NAME
- o LEVEL4 ORGANIZATION NAME
- o ORGANIZATION TYPE CODE
- o ORGANIZATION TYPE NAME
- · COMPANY CODE
- · COMPANY NAME
- o DISTRIBUTION CHANNEL CODE
- o DISTRIBUTION CHANNEL NAME
- o DIVISION CODE
- o DIVISION NAME
- · ORGANIZATION IDENTIFIER
- · ORGANIZATION NAME
- o ORGANIZATION SID
- o SALES GROUP

BUSINESS AREA
- # BUSINESS AREA SID
- · CREATED DATE
- · CHANGED DATE
- · BUSINESS AREA CODE
- · BUSINESS AREA NAME
- · BUSINESS AREA LEAF LEVEL NUMBER
- · BUSINESS AREA LEVEL 1 CODE
- · BUSINESS AREA LEVEL 1 NAME
- · BUSINESS AREA LEVEL 2 CODE
- · BUSINESS AREA LEVEL 2 NAME
- · BUSINESS AREA LEVEL 3 CODE
- · BUSINESS AREA LEVEL 3 NAME
- · BUSINESS AREA LEVEL 4 CODE
- · BUSINESS AREA LEVEL 4 NAME
- · BUSINESS AREA LEVEL 5 CODE
- · BUSINESS AREA LEVEL 5 NAME
- · ENABLED FLAG
- · VALID FROM DATE
- · VALID TO DATE

ACCOUNTING DOCUMENT CLASS
- # ACCOUNTING DOCUMENT CLASS SID
- · ACCOUNTING DOCUMENT CLASS IDENTIFIER
- · DOCUMENT TYPE CODE
- · DOCUMENT TYPE NAME
- · TRANSACTION TYPE CODE
- · TRANSACTION TYPE NAME
- · ADJUSTMENT REASON CODE
- · ADJUSTMENT REASON DESCRIPTION
- · MATCH TRANSACTION TYPE CODE
- · MATCH TRANSACTION TYPE DESCRIPTION
- · INVOICE MULTIPLIER
- · PAYMENT MULTIPLIER
- · ADJUSTMENT MULTIPLIER
- · BAD DEBT MULTIPLIER
- · USER DEFINED 1 MULTIPLIER
- · USER DEFINED 2 MULTIPLIER
- · USER DEFINED 3 MULTIPLIER
- · USER DEFINED 4 MULTIPLIER
- · USER DEFINED 5 MULTIPLIER
- · CHANGED DATE
- · CREATED DATE

AP ACTIVITY DETAIL
- · LOCAL CURRENCY AMOUNT
- · LOCAL CURRENCY NET AMOUNT
- · LOCAL CURRENCY TAX AMOUNT
- · LOCAL CURRENCY DISCOUNT TAKEN AMOUNT
- · LOCAL CURRENCY DISCOUNT ALLOWED AMOUNT
- · LOCAL CURRENCY FREIGHT AMOUNT
- · GROUP CURRENCY AMOUNT
- · GROUP CURRENCY NET AMOUNT
- · GROUP CURRENCY TAX AMOUNT
- · GROUP CURRENCY DISCOUNT TAKEN AMOUNT
- · GROUP CURRENCY DISCOUNT ALLOWED AMOUNT
- · GROUP CURRENCY FREIGHT AMOUNT
- · TOTAL PAYMENT DAYS COUNT
- · PAYMENT TERM DAY COUNT
- · PAYMENT DISCOUNT DAY COUNT
- · CREATED DATE
- · CHANGED DATE

COMPANY CONSOLIDATION
- # COMPANY CONSOLIDATION SID
- · CONSOLIDATION IDENTIFIER
- · CONSOLIDATION NAME
- · CHANGED DATE
- · COMPANY IDENTIFIER
- · COMPANY NAME
- · CREATED DATE
- · GROUP CURRENCY CODE
- · LOCAL CURRENCY CODE

EMPLOYEE
- · CHANGED DATE
- · CREATED DATE
- o EMPLOYEE CATEGORY CODE
- o EMPLOYEE CATEGORY DESCRIPTION
- o EMPLOYEE SUBTYPE CODE
- o EMPLOYEE SUBTYPE DESCRIPTION
- o EMPLOYEE TYPE CODE
- o EMPLOYEE TYPE DESCRIPTION
- o EMPLOYMENT START DATE
- o EMPLOYMENT END DATE
- o FIRST NAME
- o LOCK INDICATOR
- o MIDDLE NAME OR INITIAL
- # PERSONNEL NUMBER SID

VENDOR
- # VENDOR SID
- · VENDOR ACCOUNT NUMBER
- · COMPANY CODE
- · PURCHASING ORGANIZATION CODE
- o VENDOR NAME
- o VENDOR SHORT NAME
- o CITY NAME
- o DISTRICT NAME
- o POSTAL CODE
- o REGION CODE
- o REGION NAME
- o COUNTRY CODE
- o COUNTRY NAME
- o INDUSTRY CODE
- o INDUSTRY DESCRIPTION
- o PLAN GROUP CODE
- o PLAN GROUP NAME
- o ABC INDICATOR
- · CREATED DATE
- · CHANGED DATE
- o VENDOR CATEGORY CODE
- o VENDOR CATEGORY DESCRIPTION
- o VENDOR CATEGORY 1 CODE

CHART OF ACCOUNT
- # CHART OF ACCOUNT SID
- · CHART OF ACCOUNT NAME
- · ACCOUNT IDENTIFIER
- · CHART IDENTIFIER
- · COMPANY CODE
- · ACCOUNT NUMBER
- · ACCOUNT NAME
- · ACCOUNT LONG NAME
- · ACCOUNT ADDITIONAL TEXT
- · ACCOUNT CATEGORY TYPE CODE
- · ACCOUNT CATEGORY TYPE NAME
- · ACCOUNT CURRENCY CODE
- · ACCOUNT LEAF LEVEL NUMBER
- · ACCOUNT LEVEL 1 IDENTIFIER
- · ACCOUNT LEVEL 1 NAME
- · ACCOUNT LEVEL 2 IDENTIFIER
- · ACCOUNT LEVEL 2 NAME
- · ACCOUNT LEVEL 3 IDENTIFIER
- · ACCOUNT LEVEL 3 NAME
- · ACCOUNT LEVEL 4 IDENTIFIER
- · ACCOUNT LEVEL 4 NAME
- · ACCOUNT LEVEL 5 IDENTIFIER
- · ACCOUNT LEVEL 5 NAME
- · ACCOUNT LEVEL 6 IDENTIFIER
- · ACCOUNT LEVEL 6 NAME
- · ACCOUNT LEVEL 7 IDENTIFIER
- · ACCOUNT LEVEL 7 NAME
- · ACCOUNT LEVEL 8 IDENTIFIER
- · ACCOUNT LEVEL 8 NAME
- · ACCOUNT LEVEL 9 IDENTIFIER
- · ACCOUNT LEVEL 9 NAME
- · ACCOUNT LEVEL 10 IDENTIFIER
- · ACCOUNT LEVEL 10 NAME
- · FISCAL YEAR
- · FINANCIAL BUDGET ITEM IDENTIFIER
- · BLOCKED FLAG
- o POSTABLE GL ACCOUNT FLAG
- · SIGN REVERSAL MULTIPLIER
- o CREDIT ACCOUNT MULTIPLIER
- o DEBIT ACCOUNT MULTIPLIER
- o BALANCE SHEET MULTIPLIER

Relationship labels: is posting date for · activity period · for fiscal period · details of · AP activity · has activities · has AP clerk of · details of · against partner · processes AP · was posted on · processed by AP department · has account rep · is AP clerk for · is account rep · billed by Vendor · Vendor billed · pays for/payment to · has liability account · has cash account · is liability account for · is cash account for · is business area for · from business area · AP activity document · AP document type

FIGURE 15 A

COST CENTER
- COST CENTER SID
- COST CENTER CODE
- CHANGED DATE
- CONTROLLING AREA KEY CODE
- CONTROLLING AREA NAME
- COST CENTER DEPARTMENT CODE
- COST CENTER DEPARTMENT NAME
- COST CENTER LEAF LEVEL NUMBER
- COST CENTER DESCRIPTION
- COST CENTER NAME
- COST CENTER MANAGER NAME
- COST CENTER RESPONSIBLE EXECU
- CREATED DATE
- LOCAL CURRENCY CODE
- REGION CODE
- REGION NAME
- VALID FROM DATE
- VALID TO DATE
- COST CENTER LEVEL 1 CODE
- COST CENTER LEVEL 2 CODE

FISCAL
- FISCAL PERIOD SID
- FISCAL VARIANT CODE
- FISCAL YEAR VALUE
- FISCAL QUARTER
- POSTING PERIOD NUMBER
- FISCAL DATE
- POSTING PERIOD COUNT

AP ACTIVITY DOCUMENT
- AP ACTIVITY DOCUMENT SID
- DOCUMENT COMPANY CODE
- TRANSACTION TYPE CODE
- DOCUMENT NUMBER
- DOCUMENT ITEM NUMBER
- BATCH NUMBER
- BATCH TYPE CODE
- ADJUSTMENT REASON CODE
- PAYMENT TERM CODE
- PAYMENT INSTRUMENT CODE
- TAXATION AUTHORITY CODE
- DOCUMENT OPEN DATE
- PAYMENT DUE DATE
- DISCOUNT BEFORE DATE
- PAYMENT OR ADJUSTMENT DATE
- INVOICE CLEARED DATE
- GROUP CURRENCY CODE
- LOCAL CURRENCY CODE
- DOCUMENT CURRENCY CODE
- GROUP TO LOCAL EXCHANGE RATE
- LOCAL TO DOCUMENT EXCHANGE RATE
- MATCHING DOCUMENT TYPE CODE
- MATCHING DOCUMENT NUMBER
- MATCHING DOCUMENT ITEM NUMBER
- MM DOCUMENT COMPANY CODE
- MM DOCUMENT TYPE CODE
- MM DOCUMENT NUMBER
- MM DOCUMENT ITEM NUMBER
- PO DOCUMENT COMPANY CODE
- PO DOCUMENT TYPE CODE
- PO DOCUMENT NUMBER
- PO DOCUMENT LINE NUMBER
- ADJUSTMENT REASON DESCRIPTION
- PAYMENT TERM DESCRIPTION
- PAYMENT INSTRUMENT DESCRIPTION
- TAXATION AUTHORITY DESCRIPTION
- IDENTIFICATION
- INCLUDE IN SUMMARY INDICATION
- CREATED DATE
- CHANGED DATE

TIME
- TIME SID
- CALENDAR DATE
- CALENDAR WEEKDAY
- CALENDAR DAY
- CALENDAR WEEK
- CALENDAR MONTH
- CALENDAR FISCAL PERIOD NUMBER
- CALENDAR YEAR
- CALENDAR QUARTER

ORGANIZATION
- FISCAL VARIANT CODE
- ORGANIZATION CATEGORY CODE
- ORGANIZATION CATEGORY DESCRIPTION
- ORGANIZATION HIERARCHY LEVEL NUMBER
- LEVEL1 ORGANIZATION NAME
- LEVEL2 ORGANIZATION NAME
- LEVEL3 ORGANIZATION NAME
- LEVEL4 ORGANIZATION NAME
- ORGANIZATION TYPE CODE
- ORGANIZATION TYPE NAME
- COMPANY CODE
- COMPANY NAME
- DISTRIBUTION CHANNEL CODE
- DISTRIBUTION CHANNEL NAME
- DIVISION CODE
- DIVISION NAME
- ORGANIZATION IDENTIFIER
- ORGANIZATION NAME
- ORGANIZATION SID
- SALES GROUP

COMPANY CONSOLIDATION
- COMPANY CONSOLIDATION SID
- CONSOLIDATION IDENTIFIER
- CONSOLIDATION NAME
- CHANGED DATE
- CREATED DATE
- COMPANY IDENTIFIER
- COMPANY NAME
- GROUP CURRENCY CODE
- LOCAL CURRENCY CODE

AP MONTHLY ACTIVITY SUMMARY
- NEW TRANSACTION COUNT
- OPEN TRANSACTION COUNT
- DISCOUNT TAKEN TRANSACTION COUNT
- DISCOUNT REFUSED TRANSACTION COUNT
- NEW TRANSACTION AMOUNT
- OPEN TRANSACTION AMOUNT
- DISCOUNT TAKEN AMOUNT
- DISCOUNT AVAILABLE AMOUNT
- CREATED DATE
- CHANGED DATE

EMPLOYEE
- CHANGED DATE
- CREATED DATE
- EMPLOYEE CATEGORY CODE
- EMPLOYEE CATEGORY DESCRIPTION
- EMPLOYEE SUBTYPE CODE
- EMPLOYEE SUBTYPE DESCRIPTION
- EMPLOYEE TYPE CODE
- EMPLOYEE TYPE DESCRIPTION
- EMPLOYMENT START DATE
- EMPLOYMENT END DATE
- FIRST NAME
- LOCK INDICATOR
- MIDDLE NAME OR INITIAL
- PERSONNEL NUMBER SID

BUSINESS AREA
- BUSINESS AREA SID
- CREATED DATE
- CHANGED DATE
- BUSINESS AREA CODE
- BUSINESS AREA NAME
- BUSINESS AREA LEAF LEVEL NUMBER
- BUSINESS AREA LEVEL 1 CODE
- BUSINESS AREA LEVEL 1 NAME
- BUSINESS AREA LEVEL 2 CODE
- BUSINESS AREA LEVEL 2 NAME
- BUSINESS AREA LEVEL 3 CODE
- BUSINESS AREA LEVEL 3 NAME
- BUSINESS AREA LEVEL 4 CODE
- BUSINESS AREA LEVEL 4 NAME
- BUSINESS AREA LEVEL 5 CODE
- BUSINESS AREA LEVEL 5 NAME
- ENABLED FLAG
- VALID FROM DATE
- VALID TO DATE

VENDOR
- VENDOR SID
- VENDOR ACCOUNT NUMBER
- COMPANY CODE
- PURCHASING ORGANIZATION CODE
- VENDOR NAME
- VENDOR SHORT NAME
- CITY NAME
- DISTRICT CODE
- POSTAL CODE
- REGION CODE
- REGION NAME
- COUNTRY CODE
- COUNTRY NAME
- INDUSTRY CODE
- INDUSTRY DESCRIPTION
- PLAN GROUP CODE
- PLAN GROUP NAME
- ABC INDICATOR
- CREATED DATE
- CHANGED DATE
- VENDOR CATEGORY CODE
- VENDOR CATEGORY DESCRIPTION
- VENDOR CATEGORY 1 CODE

ACCOUNTING DOCUMENT CLASS
- ACCOUNTING DOCUMENT CLASS SID
- ACCOUNTING DOCUMENT CLASS IDENTIFIER
- DOCUMENT TYPE CODE
- TRANSACTION TYPE CODE
- TRANSACTION TYPE NAME
- ADJUSTMENT REASON DESCRIPTION
- MATCH TRANSACTION TYPE CODE
- MATCH TRANSACTION TYPE DESCRIPTION
- INVOICE MULTIPLIER
- PAYMENT MULTIPLIER
- ADJUSTMENT MULTIPLIER
- BAD DEBT MULTIPLIER
- USER DEFINED 1 MULTIPLIER
- USER DEFINED 2 MULTIPLIER
- USER DEFINED 3 MULTIPLIER
- USER DEFINED 4 MULTIPLIER
- USER DEFINED 5 MULTIPLIER
- CHANGED DATE
- CREATED DATE

CHART OF ACCOUNT
- CHART OF ACCOUNT SID
- CHART OF ACCOUNT NAME
- ACCOUNT IDENTIFIER
- CHART IDENTIFIER
- COMPANY CODE
- ACCOUNT NUMBER
- ACCOUNT NAME
- ACCOUNT LONG NAME
- ACCOUNT ADDITIONAL TEXT
- ACCOUNT CATEGORY TYPE CODE
- ACCOUNT CATEGORY TYPE NAME
- ACCOUNT CURRENCY CODE
- ACCOUNT LEAF LEVEL NUMBER
- ACCOUNT LEVEL 1 IDENTIFIER
- ACCOUNT LEVEL 1 NAME
- ACCOUNT LEVEL 2 IDENTIFIER
- ACCOUNT LEVEL 2 NAME
- ACCOUNT LEVEL 3 IDENTIFIER
- ACCOUNT LEVEL 3 NAME
- ACCOUNT LEVEL 4 IDENTIFIER
- ACCOUNT LEVEL 4 NAME
- ACCOUNT LEVEL 5 IDENTIFIER
- ACCOUNT LEVEL 5 NAME
- ACCOUNT LEVEL 6 IDENTIFIER
- ACCOUNT LEVEL 6 NAME
- ACCOUNT LEVEL 7 IDENTIFIER
- ACCOUNT LEVEL 7 NAME
- ACCOUNT LEVEL 8 IDENTIFIER
- ACCOUNT LEVEL 8 NAME
- ACCOUNT LEVEL 9 IDENTIFIER
- ACCOUNT LEVEL 9 NAME
- ACCOUNT LEVEL 10 IDENTIFIER
- ACCOUNT LEVEL 10 NAME
- FISCAL YEAR
- FINANCIAL BUDGET ITEM IDENTIFIER
- BLOCKED FLAG
- POSTABLE GL ACCOUNT FLAG
- SIGN REVERSAL MULTIPLIER
- CREDIT ACCOUNT MULTIPLIER
- DEBIT ACCOUNT MULTIPLIER
- BALANCE SHEET MULTIPLIER

FIGURE 15B

Relationship labels: is cost center · is period start for · is cost center · has cost center · has monthly summary · AP summary for · processes AP · has AP org id · has period start of · is business area for · group by type · is business area for · has business area of · is for type of · has cash account of · has liability account of · was billed by Vendor · was paid to Vendor · is paid to Vendor/billing by Vendor · is account rep for · this account rep of · is cash account for · is liability account for

Gowling Lafleur Henderson LLP

COST CENTER
- # COST CENTER SID
- · COST CENTER CODE
- · CHANGED DATE
- · CONTROLLING AREA KEY CODE
- · CONTROLLING AREA NAME
- · COST CENTER DEPARTMENT CODE
- · COST CENTER DEPARTMENT NAME
- · COST CENTER DESCRIPTION
- · COST CENTER LEAF LEVEL NUMBER
- · COST CENTER MANAGER NAME
- · COST CENTER NAME
- · COST CENTER RESPONSIBLE EXECU
- · CREATED DATE
- · LOCAL CURRENCY CODE
- · REGION CODE
- · REGION NAME
- · VALID FROM DATE
- · VALID TO DATE
- · COST CENTER LEVEL 1 CODE
- · COST CENTER LEVEL 2 CODE

FISCAL
- # FISCAL PERIOD SID
- · FISCAL VARIANT CODE
- · FISCAL YEAR VALUE
- · FISCAL QUARTER
- · POSTING PERIOD NUMBER
- · FISCAL DATE
- · POSTING PERIOD COUNT

AP ACTIVITY DOCUMENT
- # AP ACTIVITY DOCUMENT SID
- · DOCUMENT COMPANY CODE
- · TRANSACTION TYPE CODE
- · DOCUMENT NUMBER
- · DOCUMENT ITEM NUMBER
- · BATCH TYPE CODE
- · BATCH NUMBER
- · ADJUSTMENT REASON CODE
- · PAYMENT TERM CODE
- · PAYMENT INSTRUMENT CODE
- · TAXATION AUTHORITY CODE
- · DOCUMENT OPEN DATE
- · PAYMENT DUE DATE
- · DISCOUNT BEFORE DATE
- · PAYMENT OR ADJUSTMENT DATE
- · INVOICE CLEARED DATE
- · GROUP CURRENCY CODE
- · LOCAL CURRENCY CODE
- · DOCUMENT CURRENCY CODE
- · GROUP TO LOCAL EXCHANGE RATE
- · LOCAL TO LOCAL EXCHANGE RATE
- · MATCHING DOCUMENT TYPE CODE
- · MATCHING DOCUMENT ITEM NUMBER
- · MATCHING DOCUMENT NUMBER
- o MM DOCUMENT COMPANY CODE
- o MM DOCUMENT TYPE CODE
- o MM DOCUMENT ITEM NUMBER
- o MM DOCUMENT NUMBER
- o PO DOCUMENT COMPANY CODE
- o PO DOCUMENT TYPE CODE
- o PO DOCUMENT NUMBER
- o PO DOCUMENT LINE NUMBER
- · ADJUSTMENT REASON DESCRIPTION
- · PAYMENT INSTRUMENT DESCRIPTION
- · PAYMENT TERM DESCRIPTION
- · TAXATION AUTHORITY DESCRIPTION
- · OPEN INDICATOR
- · INCLUDED IN SUMMARY INDICATOR
- · CREATED DATE
- · CHANGED DATE

TIME
- # TIME SID
- · CALENDAR DATE
- · CALENDAR WEEKDAY
- · CALENDAR DAY
- · CALENDAR WEEK
- · CALENDAR MONTH
- · CALENDAR FISCAL PERIOD NUMBER
- · CALENDAR YEAR
- · CALENDAR QUARTER

ORGANIZATION
- o FISCAL VARIANT CODE
- o ORGANIZATION CATEGORY CODE
- o ORGANIZATION CATEGORY DESCRIPTION
- o ORGANIZATION HIERARCHY LEVEL NUMBER
- o LEVEL1 ORGANIZATION NAME
- o LEVEL2 ORGANIZATION NAME
- o LEVEL3 ORGANIZATION NAME
- o LEVEL4 ORGANIZATION NAME
- o ORGANIZATION TYPE CODE
- o ORGANIZATION TYPE NAME
- · COMPANY CODE
- · COMPANY NAME
- o DISTRIBUTION CHANNEL CODE
- o DISTRIBUTION CHANNEL NAME
- o DIVISION CODE
- o DIVISION NAME
- o ORGANIZATION IDENTIFIER
- o ORGANIZATION NAME
- # ORGANIZATION SID
- o SALES GROUP

COMPANY CONSOLIDATION
- # COMPANY CONSOLIDATION SID
- · CONSOLIDATION IDENTIFIER
- · CONSOLIDATION NAME
- · CHANGED DATE
- · COMPANY IDENTIFIER
- · COMPANY NAME
- · CREATED DATE
- · GROUP CURRENCY CODE
- · LOCAL CURRENCY CODE

BUSINESS AREA
- # BUSINESS AREA SID
- · CREATED DATE
- · CHANGED DATE
- · BUSINESS AREA CODE
- · BUSINESS AREA NAME
- · BUSINESS AREA LEAF LEVEL NUMBER
- · BUSINESS AREA LEVEL 1 CODE
- · BUSINESS AREA LEVEL 1 NAME
- · BUSINESS AREA LEVEL 2 CODE
- · BUSINESS AREA LEVEL 2 NAME
- · BUSINESS AREA LEVEL 3 CODE
- · BUSINESS AREA LEVEL 3 NAME
- · BUSINESS AREA LEVEL 4 CODE
- · BUSINESS AREA LEVEL 4 NAME
- · BUSINESS AREA LEVEL 5 CODE
- · BUSINESS AREA LEVEL 5 NAME
- · ENABLED FLAG
- · VALID FROM DATE
- · VALID TO DATE

AP MONTHLY ACCOUNT SUMMARY
- · AP ACCOUNT BALANCE AMOUNT
- · AVERAGE DAYS PAST DUE COUNT
- · AVERAGE COLLECTION PERIOD
- · BAD DEBT AMOUNT
- · INVOICE COUNT
- · INVOICE AMOUNT
- · PAYMENT COUNT
- · PAYMENT AMOUNT
- · ADJUSTMENT COUNT
- · ADJUSTMENT AMOUNT
- · BEST POSSIBLE DPI RATIO
- · BOTTOM LINE EFFECT AMOUNT
- · PAYMENT EFFECTIVENESS INDEX
- · COST TO SERVE AMOUNT
- · DAYS OF PURCHASES INSTANDING RATIO
- · NET CREDIT PURCHASES AMOUNT
- · PAST DUE AMOUNT
- · TRADE DISCOUNT PROFIT AMOUNT
- · TRADE DISCOUNT OFFERED AMOUNT
- · DOLLAR WEIGHTED AVG DAYS BEYOND TERM AMT
- · PAST DUE COUNT
- · DOLLAR WEIGHTED AVG DAYS OUTSTANDING AMT

EMPLOYEE
- · CHANGED DATE
- o CREATED DATE
- o EMPLOYEE CATEGORY CODE
- o EMPLOYEE CATEGORY DESCRIPTION
- o EMPLOYEE SUBTYPE CODE
- o EMPLOYEE SUBTYPE DESCRIPTION
- o EMPLOYEE TYPE CODE
- o EMPLOYEE TYPE DESCRIPTION
- o EMPLOYMENT START DATE
- o EMPLOYMENT END DATE
- o FIRST NAME
- o LOCK INDICATOR
- o MIDDLE NAME OR INITIAL
- # PERSONNEL NUMBER SID

ACCOUNTING DOCUMENT CLASS
- # ACCOUNTING DOCUMENT CLASS SID
- · ACCOUNTING DOCUMENT CLASS IDENTIFIER
- · DOCUMENT TYPE CODE
- · TRANSACTION TYPE CODE
- · TRANSACTION TYPE NAME
- · ADJUSTMENT REASON CODE
- · ADJUSTMENT REASON DESCRIPTION
- · MATCH TRANSACTION TYPE CODE
- · MATCH TRANSACTION TYPE DESCRIPTION
- · INVOICE MULTIPLIER
- · PAYMENT MULTIPLIER
- · ADJUSTMENT MULTIPLIER
- · BAD DEBT MULTIPLIER
- · USER DEFINED 1 MULTIPLIER
- · USER DEFINED 2 MULTIPLIER
- · USER DEFINED 3 MULTIPLIER
- · USER DEFINED 4 MULTIPLIER
- · USER DEFINED 5 MULTIPLIER
- · CHANGED DATE
- · CREATED DATE

VENDOR
- # VENDOR SID
- · VENDOR ACCOUNT NUMBER
- · COMPANY CODE
- · PURCHASING ORGANIZATION CODE
- o VENDOR NAME
- o VENDOR SHORT NAME
- o CITY NAME
- o DISTRICT NAME
- o POSTAL CODE
- o REGION CODE
- o REGION NAME
- o COUNTRY CODE
- o COUNTRY NAME
- o INDUSTRY CODE
- o INDUSTRY DESCRIPTION
- o PLAN GROUP CODE
- o PLAN GROUP NAME
- o ABC INDICATOR
- o CREATED DATE
- o CHANGED DATE
- o VENDOR CATEGORY CODE
- o VENDOR CATEGORY DESCRIPTION
- o VENDOR CATEGORY 1 CODE

CHART OF ACCOUNT
- # CHART OF ACCOUNT SID
- · CHART OF ACCOUNT NAME
- · ACCOUNT IDENTIFIER
- · CHART IDENTIFIER
- · COMPANY CODE
- · ACCOUNT NUMBER
- · ACCOUNT NAME
- · ACCOUNT LONG NAME
- · ACCOUNT ADDITIONAL TEXT
- · ACCOUNT CATEGORY TYPE CODE
- · ACCOUNT CATEGORY TYPE NAME
- · ACCOUNT CURRENCY CODE
- · ACCOUNT LEAF LEVEL NUMBER
- · ACCOUNT LEVEL 1 IDENTIFIER
- · ACCOUNT LEVEL 1 NAME
- · ACCOUNT LEVEL 2 IDENTIFIER
- · ACCOUNT LEVEL 2 NAME
- · ACCOUNT LEVEL 3 IDENTIFIER
- · ACCOUNT LEVEL 3 NAME
- · ACCOUNT LEVEL 4 IDENTIFIER
- · ACCOUNT LEVEL 4 NAME
- · ACCOUNT LEVEL 5 IDENTIFIER
- · ACCOUNT LEVEL 5 NAME
- · ACCOUNT LEVEL 6 IDENTIFIER
- · ACCOUNT LEVEL 6 NAME
- · ACCOUNT LEVEL 7 IDENTIFIER
- · ACCOUNT LEVEL 7 NAME
- · ACCOUNT LEVEL 8 IDENTIFIER
- · ACCOUNT LEVEL 8 NAME
- · ACCOUNT LEVEL 9 IDENTIFIER
- · ACCOUNT LEVEL 9 NAME
- · ACCOUNT LEVEL 10 IDENTIFIER
- · ACCOUNT LEVEL 10 NAME
- · FISCAL YEAR
- · FINANCIAL BUDGET ITEM IDENTIFIER
- · BLOCKED FLAG
- · POSTABLE GL ACCOUNT FLAG
- · SIGN REVERSAL MULTIPLIER
- · CREDIT ACCOUNT MULTIPLIER
- · DEBIT ACCOUNT MULTIPLIER
- · BALANCE SHEET MULTIPLIER

is Profit Center for
is period for
has profit Center of
has period of
has Consolidation Company c
is Consolidation Company to
has Analyst of
has AP Organization for
is AP Organization of
is AP Analyst for
is Business Area for
has Business Area of
has liability Account of
has cash account of
is billed by Vendor
was paid to Vendor
has billed by Vendor
is paid to Vendor
is liability account for
is cash account for

FIGURE 15C

COST CENTER
- \# COST CENTER SID
- * COST CENTER CODE
- * CHANGED DATE
- o CONTROLLING AREA KEY CODE
- o CONTROLLING AREA NAME
- o COST CENTER DEPARTMENT CODE
- o COST CENTER DEPARTMENT NAME
- o COST CENTER DESCRIPTION
- o COST CENTER LEAF LEVEL NUMBER
- o COST CENTER MANAGER NAME
- o COST CENTER NAME
- o COST CENTER RESPONSIBLE EXECUT
- * CREATED DATE
- o LOCAL CURRENCY CODE
- o REGION CODE
- o REGION NAME
- * VALID FROM DATE
- * VALID TO DATE
- o COST CENTER LEVEL 1 CODE
- o COST CENTER LEVEL 2 CODE

FISCAL
- \# FISCAL PERIOD SID
- * FISCAL VARIANT CODE
- * FISCAL YEAR VALUE
- o FISCAL QUARTER
- o POSTING PERIOD NUMBER
- * FISCAL DATE
- o POSTING PERIOD COUNT

AP ACTIVITY DOCUMENT
- \# AR ACTIVITY DOCUMENT SID
- o DOCUMENT COMPANY CODE
- o TRANSACTION TYPE CODE
- o DOCUMENT NUMBER
- o DOCUMENT ITEM NUMBER
- o BATCH TYPE CODE
- o BATCH NUMBER
- o ADJUSTMENT REASON CODE
- o PAYMENT TERM CODE
- o PAYMENT INSTRUMENT CODE
- o TAXATION AUTHORITY CODE
- o DOCUMENT OPEN DATE
- o PAYMENT DUE DATE
- o DISCOUNT BEFORE DATE
- o PAYMENT OR ADJUSTMENT DATE
- o INVOICE CLEARED DATE
- o GROUP CURRENCY CODE
- o LOCAL CURRENCY CODE
- o DOCUMENT CURRENCY CODE
- o GROUP TO LOCAL EXCHANGE RATE
- o GROUP TO DOCUMENT EXCHANGE RATE
- o MATCHING DOCUMENT TYPE CODE
- o MATCHING DOCUMENT NUMBER
- o MATCHING DOCUMENT ITEM NUMBER
- o IA DOCUMENT COMPANY CODE
- o IA DOCUMENT TYPE CODE
- o IA DOCUMENT NUMBER
- o IA DOCUMENT ITEM NUMBER
- o PO DOCUMENT COMPANY CODE
- o PO DOCUMENT TYPE CODE
- o PO DOCUMENT NUMBER
- o PO DOCUMENT LINE NUMBER
- o ADJUSTMENT REASON DESCRIPTION
- o PAYMENT TERM DESCRIPTION
- o PAYMENT INSTRUMENT DESCRIPTION
- o TAXATION AUTHORITY DESCRIPTION
- o OPEN INDICATOR
- o INCLUDED IN SUMMARY INDICATOR
- * CREATED DATE
- * CHANGED DATE

TIME
- \# TIME SID
- * CALENDAR DATE
- * CALENDAR WEEKDAY
- * CALENDAR DAY
- * CALENDAR WEEK
- * CALENDAR MONTH
- * CALENDAR YEAR
- o CALENDAR FISCAL PERIOD NUMBER
- * CALENDAR QUARTER

ORGANIZATION
- o FISCAL VARIANT CODE
- o ORGANIZATION CATEGORY CODE
- o ORGANIZATION CATEGORY DESCRIPTION
- o ORGANIZATION HIERARCHY LEVEL NUMBER
- o LEVEL1 ORGANIZATION NAME
- o LEVEL2 ORGANIZATION NAME
- o LEVEL3 ORGANIZATION NAME
- o LEVEL4 ORGANIZATION NAME
- o ORGANIZATION TYPE CODE
- o ORGANIZATION TYPE NAME
- * COMPANY CODE
- * COMPANY NAME
- o DISTRIBUTION CHANNEL CODE
- o DISTRIBUTION CHANNEL NAME
- o DIVISION CODE
- o DIVISION NAME
- * ORGANIZATION IDENTIFIER
- * ORGANIZATION NAME
- \# ORGANIZATION SID
- o SALES GROUP

BUSINESS AREA
- \# BUSINESS AREA SID
- * CREATED DATE
- * CHANGED DATE
- * BUSINESS AREA CODE
- * BUSINESS AREA NAME
- o BUSINESS AREA LEAF LEVEL NUMBER
- o BUSINESS AREA LEVEL 1 CODE
- o BUSINESS AREA LEVEL 1 NAME
- o BUSINESS AREA LEVEL 2 CODE
- o BUSINESS AREA LEVEL 2 NAME
- o BUSINESS AREA LEVEL 3 CODE
- o BUSINESS AREA LEVEL 3 NAME
- o BUSINESS AREA LEVEL 4 CODE
- o BUSINESS AREA LEVEL 4 NAME
- o BUSINESS AREA LEVEL 5 CODE
- o BUSINESS AREA LEVEL 5 NAME
- o ENABLED FLAG
- * VALID FROM DATE
- * VALID TO DATE

COMPANY CONSOLIDATION
- \# COMPANY CONSOLIDATION SID
- * CONSOLIDATION IDENTIFIER
- * CONSOLIDATION NAME
- * CHANGED DATE
- * COMPANY IDENTIFIER
- * COMPANY NAME
- * CREATED DATE
- o GROUP CURRENCY CODE
- o LOCAL CURRENCY CODE

AP DAILY ACTIVITY SUMMARY
- o OPEN TRANSACTION COUNT
- o NEW TRANSACTION COUNT
- o DISCOUNT TAKEN TRANSACTION COUNT
- o DISCOUNT REFUSED TRANSACTI COUNT
- o DISCOUNT AVAILABLE AMOUNT
- o DISCOUNT TAKEN AMOUNT
- o OPEN TRANSACTION AMOUNT
- o NEW TRANSACTION AMOUNT
- o TOTAL GROSS SALES REVENUE AMOUNT
- o TOTAL NET SALES REVENUE AMOUNT
- o TOTAL REVENUE AMOUNT
- o PAST DUE AMOUNT
- o AVERAGE TRANSACTION AMOUNT
- o AVERAGE GROSS SALES REVENUE AMOUNT
- o AVERAGE NET SALES REVENUE AMOUNT

EMPLOYEE
- * CHANGED DATE
- o CREATED DATE
- o EMPLOYEE CATEGORY CODE
- o EMPLOYEE CATEGORY DESCRIPTION
- o EMPLOYEE SUBTYPE CODE
- o EMPLOYEE SUBTYPE DESCRIPTION
- o EMPLOYEE TYPE CODE
- o EMPLOYEE TYPE DESCRIPTION
- o EMPLOYMENT START DATE
- o EMPLOYMENT END DATE
- o FIRST NAME
- o LOCK INDICATOR
- o MIDDLE NAME OR INITIAL
- \# PERSONNEL NUMBER SID

VENDOR
- \# VENDOR SID
- * VENDOR ACCOUNT NUMBER
- * COMPANY CODE
- * PURCHASING ORGANIZATION CODE
- o VENDOR NAME
- o VENDOR SHORT NAME
- o CITY NAME
- o DISTRICT NAME
- o POSTAL CODE
- o REGION CODE
- o REGION NAME
- o COUNTRY CODE
- o COUNTRY NAME
- o INDUSTRY CODE
- o INDUSTRY DESCRIPTION
- o PLAN GROUP CODE
- o PLAN GROUP NAME
- o ABC INDICATOR
- * CREATED DATE
- * CHANGED DATE
- o VENDOR CATEGORY CODE
- o VENDOR CATEGORY DESCRIPTION
- o VENDOR CATEGORY 1 CODE

ACCOUNTING DOCUMENT CLASS
- \# ACCOUNTING DOCUMENT CLASS SID
- * ACCOUNTING DOCUMENT CLASS IDENTIFIER
- * DOCUMENT TYPE CODE
- * DOCUMENT TYPE NAME
- * TRANSACTION TYPE CODE
- * TRANSACTION TYPE NAME
- o ADJUSTMENT REASON CODE
- o ADJUSTMENT REASON DESCRIPTION
- o MATCH TRANSACTION TYPE CODE
- o MATCH TRANSACTION TYPE DESCRIPTION
- o INVOICE MULTIPLIER
- o PAYMENT MULTIPLIER
- o ADJUSTMENT MULTIPLIER
- o BAD DEBT MULTIPLIER
- o USER DEFINED 1 MULTIPLIER
- o USER DEFINED 2 MULTIPLIER
- o USER DEFINED 3 MULTIPLIER
- o USER DEFINED 4 MULTIPLIER
- o USER DEFINED 5 MULTIPLIER
- * CHANGED DATE
- * CREATED DATE

CHART OF ACCOUNT
- \# CHART OF ACCOUNT SID
- * CHART OF ACCOUNT NAME
- * CHART IDENTIFIER
- * COMPANY CODE
- o ACCOUNT NUMBER
- o ACCOUNT NAME
- o ACCOUNT LONG NAME
- o ACCOUNT ADDITIONAL TEXT
- o ACCOUNT CATEGORY TYPE CODE
- o ACCOUNT CATEGORY TYPE NAME
- o ACCOUNT CURRENCY CODE
- o ACCOUNT LEAF LEVEL NUMBER
- o ACCOUNT LEVEL 1 IDENTIFIER
- o ACCOUNT LEVEL 1 NAME
- o ACCOUNT LEVEL 2 IDENTIFIER
- o ACCOUNT LEVEL 2 NAME
- o ACCOUNT LEVEL 3 IDENTIFIER
- o ACCOUNT LEVEL 3 NAME
- o ACCOUNT LEVEL 4 IDENTIFIER
- o ACCOUNT LEVEL 4 NAME
- o ACCOUNT LEVEL 5 IDENTIFIER
- o ACCOUNT LEVEL 5 NAME
- o ACCOUNT LEVEL 6 IDENTIFIER
- o ACCOUNT LEVEL 6 NAME
- o ACCOUNT LEVEL 7 IDENTIFIER
- o ACCOUNT LEVEL 7 NAME
- o ACCOUNT LEVEL 8 IDENTIFIER
- o ACCOUNT LEVEL 8 NAME
- o ACCOUNT LEVEL 9 IDENTIFIER
- o ACCOUNT LEVEL 9 NAME
- o ACCOUNT LEVEL 10 IDENTIFIER
- o ACCOUNT LEVEL 10 NAME
- o FISCAL YEAR
- o FINANCIAL BUDGET ITEM IDENTIFIER
- o BLOCKED FLAG
- o POSTABLE GL ACCOUNT FLAG
- o SIGN REVERSAL MULTIPLIER
- o CREDIT ACCOUNT MULTIPLIER
- o DEBIT ACCOUNT MULTIPLIER
- o BALANCE SHEET MULTIPLIER

Relationship labels: has center of · is fiscal period for · is summary day date · has fiscal period of · AP summary for · has daily summary · is center for · processes AP · has summary day date · has AP account rep · is AP account rep for · is AP clerk for · has AP clerk of · is business are for · for business or this AP department of · is for type of · cash account · liability account · billed by Vendor · was paid to · is paid to · AP summary of · is cash account for · is liability account for · groups by type

FIGURE 15b

Gowling Lafleur Henderson LLP

FIGURE 15E

FIGURE 15 F

AR MONTHLY TRANSACTION SUMMARY
- MONTHLY OPEN TRANSACTION COUNT
- MONTHLY NEW TRANSACTION COUNT
- MONTHLY DISCOUNT TAKEN TRANSACTION COUNT
- MONTHLY DISCOUNT REFUSED TRANSACTION COUNT
- MONTHLY TOTAL TRANSACTION AMOUNT
- MONTHLY PROFIT AMOUNT
- MONTHLY AVERAGE TRANSACTION COUNT
- MONTHLY AVERAGE TRANSACTION AMOUNT
- MONTHLY NEW TO OPEN TRANSACT COUNT RATIO
- MONTHLY NEW TO OPEN TRANSAC AMOUNT RATIO
- MONTHLY AVERAGE DAILY SALES VOLUME
- MONTHLY AVERAGE COLLECTION PERIOD
- MONTHLY VALUE PAST DUE AMOUNT
- MONTHLY TRADE DISCOUNT COST AMOUNT
- MONTHLY EFFECT ON BOTTOM LINE AMOUNT
- MONTHLY COLLECTION EFFECTIVENESS INDEX
- DOLLAR WEIGHTED AVG DAYS OUTSTANDING AMT
- DOLLAR WEIGHTED AVG DAYS BEYOND TERM AMT
- DOLLAR WEIGHTED AVERAGE DAYS TO PAY AMT
- MONTHLY NET CREDIT PERIOD
- MONTHLY AR ACCOUNT BALANCE AMOUNT
- CREATED DATE
- CHANGED DATE

has monthly summar

is profit center for

billed customer

has AR arg of

AR summary for

group by twid

is for type of

has AR analyst of

is AR analyst for

is period for

has period of

has business area of

is business area for

reconciliation account

AR monthly summary of

has monthly summary

pr issues AR

AR monthly summary

FIGURE 156

AR MONTHLY ACCOUNT SUMMARY
- MONTHLY AVERAGE COST TO SERVE AMOUNT
- MONTHLY AVG INVOICE PAYMENT DAY COUNT
- MONTHLY COST TO SERVE AMOUNT
- MONTHLY AVERAGE DAILY SALES VOLUME
- MONTHLY AVERAGE COLLECTION PERIOD
- MONTHLY VALUE PAST DUE AMOUNT
- MONTHLY TRADE DISCOUNT COST AMOUNT
- MONTHLY EFFECT ON BOTTOM LINE AMOUNT
- MONTHLY AVERAGE DELIQUENT DAY COUNT
- MONTHLY COLLECTION EFFECTIVENESS INDEX
- DOLLAR WEIGHTED AVG DAYS OUTSTANDING AMT
- DOLLAR WEIGHTED AVG DAYS BEYOND TERM AMT
- MONTHLY AR ACCOUNT BALANCE AMOUNT

has monthly AR summary

is Consolidation Company for

is Profit Center for

has profit Center of

for Customer

has AR Organization of

is AR Organization for

Is Consolidation Company for

has period of

gas Consolidation Company of

has Analyst of

has Business Area of

has reconsilation Account of

is period for

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is AR Analyst for

is Business Area for

F_{1GURE} 15 H

Gowling Lafleur Henderson LLP

FIGURE 151

FINANCIAL CURRENCY CONVERSION
FROM CURRENCY CODE
TO CURRENCY CODE
...

CHART OF ACCOUNT
CHART OF ACCOUNT SID
· ACCOUNT IDENTIFIER
· CHART OF ACCOUNT IDENTIFIER
· ACCOUNT NUMBER
· ACCOUNT NAME
· ACCOUNT LONG NAME
· CHART OF ACCOUNT NAME
· ACCOUNT ADDITIONAL TEXT
· ACCOUNT CATEGORY TYPE CODE
...

BUSINESS AREA
BUSINESS AREA SID
· CREATED DATE
· CHANGED DATE
· BUSINESS AREA CODE
· BUSINESS AREA NAME
· BUSINESS AREA LEAF LEVEL NUME
...

ALL TIME

FISCAL
FISCAL PERIOD
...

TIME
TIME SID
...

CONSOLIDATION
CONSOLIDATION COMPANY S
· CONSOLIDATION IDENTIFIER
· CONSOLIDATION NAME
· CHANGED DATE
· COMPANY IDENTIFIER
· COMPANY NAME
...

BUDGET VERSION
BUDGET_VERSION_SID
· BUDGET VERSION ID
· BUDGET VERSION NAME
· CHANGED DATE
· CREATED DATE
· LEDGER ID
· LEDGER NAME

GL BUDGET
· CHANGED DATE
· CREATED DATE
· GROUP CURRENCY CLOSE BAL AMOUNT
· GROUP CURRENCY PERIOD OPEN BAL AMOUNT
· GROUP CURRENCY PERIOD OPEN BAL AMOUNT
· GROUP CURRENCY YEAR OPEN BAL AMOUNT
· GROUP CURRENCY YTD ACTIVITY AMOUNT
· LOCAL CURRENCY CLOSE BAL AMOUNT
· LOCAL CURRENCY PERIOD ACTIVITY AMOUNT
· LOCAL CURRENCY PERIOD OPEN BAL AMOUNT
· LOCAL CURRENCY YEAR OPENING BAL AMOUNT
· LOCAL CURRENCY YTD ACTIVITY AMOUNT

FINANCIAL CURRENCY CONVERSION
FROM CURRENCY CODE
TO CURRENCY CODE
...

FISCAL
FISCAL PERIOD
...

ALL TIME

TIME
TIME SID
...

CHART OF ACCOUNT
CHART OF ACCOUNT SID
· ACCOUNT IDENTIFIER
· CHART OF ACCOUNT IDENTIFIER
· ACCOUNT NUMBER
· ACCOUNT NAME
· ACCOUNT LONG NAME
· CHART OF ACCOUNT NAME
· ACCOUNT ADDITIONAL TEXT
· ACCOUNT CATEGORY TYPE CODE

COST CENTER
COST CENTER SID
· COST CENTER CODE
· CHANGED DATE
· CONTROLLING AREA KEY CODE
· CONTROLLING AREA NAME
· COST CENTER DEPARTMENT CODE
· COST CENTER DEPARTMENT NAME
· COST CENTER DESCRIPTION
· COST CENTER LEAF LEVEL NUMBER
· COST CENTER LEVEL 1 CODE
· COST CENTER LEVEL 1 NAME

BUSINESS AREA
BUSINESS AREA SID
· CREATED DATE
· CHANGED DATE
· BUSINESS AREA CODE
· BUSINESS AREA NAME
· BUSINESS AREA LEAF LEVEL NUMI
...

CONSOLIDATION
CONSOLIDATION COMPANY S
· CONSOLIDATION IDENTIFIER
· CONSOLIDATION NAME
· CHANGED DATE
· COMPANY IDENTIFIER
· COMPANY NAME
...

GL BALANCE
· CHANGED DATE
· CREATED DATE
· GROUP CURRENCY CLOSE BAL AMOUNT
· GROUP CURRENCY PERIOD CREDIT AMOUNT
· GROUP CURRENCY PERIOD DEBIT AMOUNT
· GROUP CURRENCY PERIOD NET ACTIVITY AMT
· GROUP CURRENCY PERIOD OPEN BAL AMOUNT
· GROUP CURRENCY YEAR OPEN BAL AMOUNT
· GROUP CURRENCY YTD CREDIT AMOUNT
· GROUP CURRENCY YTD DEBIT AMOUNT
· GROUP CURRENCY YTD NET ACTIVITY AMOUNT
· LOCAL CURRENCY CLOSE BAL AMOUNT
· LOCAL CURRENCY PERIOD CREDIT AMOUNT
· LOCAL CURRENCY PERIOD DEBIT AMOUNT
· LOCAL CURRENCY PERIOD NET ACTIVITY AMT
· LOCAL CURRENCY PERIOD OPEN BAL AMOUNT
· LOCAL CURRENCY YEAR OPEN BAL AMOUNT
· LOCAL CURRENCY YTD CREDIT AMOUNT
· LOCAL CURRENCY YTD DEBIT AMOUNT
· LOCAL CURRENCY YTD NET ACTIVITY AMOUNT
· YEAR END INDICATOR

PROFIT CENTER
PROFIT CENTER SID
· PROFIT CENTER CODE
· CHANGED DATE
· CONTROLLING AREA KEY CODE
· CONTROLLING AREA NAME
· CREATED DATE
· PROFIT CENTER DEPARTMENT CODE
...

ACCOUNTING DOCUMENT CLASS
ACCOUNTING DOCUMENT CLASS S
· ACCOUNTING DOCUMENT CLASS IL
· DOCUMENT TYPE CODE
· TRANSACTION TYPE CODE
· DOCUMENT TYPE DESCRIPTION
· TRANSACTION TYPE DESCRIPTION
· PAYMENT MULTIPLIER
· BILLED MULTIPLIER
· ADJUSTMENT MULTIPLIER
· CHANGED DATE
· CREATED DATE

GL ACTIVITY DOCUMENT
GL ACTIVITY DOCUMENT SID
· DOCUMENT NUMBER
· DOCUMENT ITEM NUMBER
· ASSET MAIN NUMBER
· ASSET SUB NUMBER
· CHANGED DATE
· CLEARING DOCUMENT NUMBER
· COMMITMENT ITEM IDENTIFIER
· CREATED DATE
· DEBIT CREDIT INDICATOR
· DOCUMENT CURRENCY CODE
· DOCUMENT DATE
· DOCUMENT HEADER TEXT
· DOCUMENT TO LOCAL EXCHANGE
· FINANCIAL BUDGET ITEM IDENTIFIE
· FISCAL YEAR
· LINE ITEM IDENTIFIER
· LINE ITEM TEXT
· PARTNER ACCOUNT NUMBER
· PARTNER PROFIT CENTER
· PAYMENT METHOD CODE
· PAYMENT METHOD NAME
· PROJECT NUMBER
· REFERENCE DOCUMENT ITEM NUI
· REFERENCE DOCUMENT NUMBER
· REFERENCE DOCUMENT TYPE CO
· REFERENCE DOCUMENT TYPE NAI

FIGURE 15J.

FINANCIAL CURRENCY CONVERSION
FROM CURRENCY CODE
TO CURRENCY CODE
...

FISCAL
FISCAL PERIOD
...

ALL TIME

TIME
TIME SID
...

CHART OF ACCOUNT
CHART OF ACCOUNT SID
· ACCOUNT IDENTIFIER
· CHART OF ACCOUNT IDENTIFIER
· ACCOUNT NUMBER
· ACCOUNT NAME
· ACCOUNT LONG NAME
· CHART OF ACCOUNT NAME
· ACCOUNT ADDITIONAL TEXT
· ACCOUNT CATEGORY TYPE CODE
...

COST CENTER
COST CENTER SID
· COST CENTER CODE
· CHANGED DATE
· CONTROLLING AREA KEY CODE
· CONTROLLING AREA NAME
· COST CENTER DEPARTMENT CODE
· COST CENTER DEPARTMENT NAME
· COST CENTER DESCRIPTION
· COST CENTER LEAF LEVEL NUMBER
· COST CENTER LEVEL 1 CODE
· COST CENTER LEVEL 1 NAME
...

BUSINESS AREA
BUSINESS AREA SID
· CREATED DATE
· CHANGED DATE
· BUSINESS AREA CODE
· BUSINESS AREA NAME
· BUSINESS AREA LEAF LEVEL NUMBE
...

COMPANY CONSOLIDATION
COMPANY CONSOLIDATION S
· CONSOLIDATION IDENTIFIER
· CONSOLIDATION NAME
· CHANGED DATE
· COMPANY IDENTIFIER
· COMPANY NAME
...

GL ACTIVITY DETAIL
· LOCAL CURRENCY AMOUNT
· LOCAL CURRENCY CREDIT AMOUNT
· LOCAL CURRENCY DEBIT AMOUNT
· LOCAL CURRENCY NET AMOUNT
· GROUP CURRENCY CREDIT AMOUNT
· GROUP CURRENCY DEBIT AMOUNT
· GROUP CURRENCY NET AMOUNT
· CHANGED DATE
· CREATED DATE

ACCOUNTING DOCUMENT CLASS
ACCOUNTING DOCUMENT CLASS SID
· ACCOUNTING DOCUMENT CLASS IDEN
· DOCUMENT TYPE CODE
· TRANSACTION TYPE CODE
· DOCUMENT TYPE DESCRIPTION
· TRANSACTION TYPE DESCRIPTION
· DOCUMENT TYPE NAME
· PAYMENT MULTIPLIER
· BILLED MULTIPLIER
· ADJUSTMENT MULTIPLIER
· CHANGED DATE
· CREATED DATE

GL ACTIVITY DOCUMENT
GL ACTIVITY DOCUMENT SID
· DOCUMENT NUMBER
· DOCUMENT ITEM NUMBER
· ASSET MAIN NUMBER
· ASSET SUB NUMBER
· CHANGED DATE
· CLEARING DOCUMENT NUMBER
· COMMITMENT ITEM IDENTIFIER
· CREATED DATE
· DEBIT CREDIT INDICATOR
· DOCUMENT CURRENCY CODE
· DOCUMENT DATE
· DOCUMENT HEADER TEXT
· DOCUMENT TO LOCAL EXCHANGE
· FINANCIAL BUDGET ITEM IDENTIFIE
· FISCAL YEAR
· LINE ITEM IDENTIFIER
· LINE ITEM TEXT
· PARTNER ACCOUNT NUMBER
· PARTNER PROFIT CENTER
· PAYMENT METHOD CODE
· PAYMENT METHOD NAME
· PROJECT NUMBER
· REFERENCE DOCUMENT ITEM NUM
· REFERENCE DOCUMENT NUMBER
· REFERENCE DOCUMENT TYPE CO
· REFERENCE DOCUMENT TYPE NAM

PROFIT CENTER
PROFIT CENTER SID
· PROFIT CENTER CODE
· CHANGED DATE
· CONTROLLING AREA KEY CODE
· CONTROLLING AREA NAME
· CREATED DATE
· PROFIT CENTER DEPARTMENT CODE
...

FIGURE 15K

STOCK CLASS
- # STOCK CLASS SID
- · STOCK TYPE CODE
- · SPECIAL STOCK CODE
- · STOCK TYPE DESCRIPTION
- · SPECIAL STOCK DESCRIPTION
- · BLOCKED MULTIPLIER
- · QI MULTIPLIER
- o CUST CONSIGN MULTIPLIER
- o VENDOR CONSIGN MULTIPLIER
- o UNRESTRICTED MULTIPLIER
- o OVERALL STATUS LEVEL 1
- o OVERALL STATUS LEVEL 2
- o OVERALL STATUS LEVEL 3
- o OVERALL STATUS LEVEL 4
- o OVERALL STATUS LEVEL 5
- · USER MULTIPLIER 1
- · USER MULTIPLIER 2
- · USER MULTIPLIER 3

MATERIAL STORAGE
- # PLANT MATERIAL SID
- · MATERIAL ID
- · PLANT ID
- o SPECIAL PROCUREMENT TYPE CODE
- o SPECIAL PROCUREMENT DESCRIPTION
- o UOM CODE
- o MRP PROFILE CODE
- o MRP CONTROLLER CODE
- o MRP CONTROLLER NAME
- o VALUATION CATEGORY CODE
- o VALUATION CATEGORY DESCRIPTION
- o REPLENISHMENT LEAD-TIME
- o REORDER POINT QUANTITY
- o MAXIMUM STOCK QUANTITY
- o SAFETY STOCK QUANTITY
- o SHELF LIFE EXPIRATION DATE
- o ABC INDICATOR
- o PURCHASING GROUP CODE

STORAGE BIN
- # STORAGE BIN SID
- · WAREHOUSE NUMBER
- · WAREHOUSE NAME
- · STORAGE TYPE CODE
- o STORAGE TYPE DESCRIPTION
- o STORAGE BIN ID
- o STORAGE SECTION ID
- o STORAGE SECTION NAME
- o BIN TYPE CODE
- o BIN TYPE DESCRIPTION
- o BIN SECTION ID
- o BIN UNIT NUMBER
- o BIN UNIT MAXIMUM NUMBER
- o DYNAMIC BIN INDICATOR
- o BIN LOAD CAPACITY
- o BLOCK INDICATOR
- o BLOCK REASON CODE
- o BLOCK REASON DESCRIPTION
- o BIN QUANTS
- o BIN QUANTS MAXIMUM
- o WEIGHT UNIT
- o INVENTORY METHOD CODE
- o INVENTORY METHOD DESCRIPTI
- o INVENTORY PREPARATION

MOVEMENT CLASS
- # MOVEMENT CLASS SID
- · DOCUMENT TYPE CODE
- o DOCUMENT TYPE DESCRIPTION
- · MOVEMENT TYPE CODE
- · SPECIAL STOCK INDICATOR
- · MOVEMENT INDICATOR
- · RECEIPT INDICATOR
- o CONSUMPTION INDICATOR
- o MOVEMENT TYPE DESCRIPTION
- o BLOCKED MULTIPLIER
- o CONSUMPTION MULTIPLIER
- o INSPECTION MULTIPLIER
- o REVERSAL MULTIPLIER
- o INDEPENDENT REQUIREMENTS MULTIPL
- o MART INCLUDE MULTIPLIER
- o GOODS ISSUE MULTIPLIER
- o GOODS RECEIPT MULTIPLIER

BATCH
- # BATCH SID
- · MATERIAL ID
- · PLANT ID
- · BATCH NUMBER
- o AVAILABILITY DATE
- o SHELF LIFE EXPIRATION DATE
- o BATCH STATUS CODE
- o RESTRICTED USE INDICATOR
- o VENDOR ACCOUNT NUMBER
- o VENDOR BATCH NUMBER
- ...

PLANT
- # PLANT SID
- · PLANT ID
- o STORAGE LOCATION CODE
- o UNLOADING POINT NAME
- o PLANT NAME
- o POSTAL CODE
- o CITY CODE
- o CITY NAME
- o COUNTRY CODE
- o COUNTRY NAME
- o COUNTY CODE
- o COUNTY_NAME
- o REGION CODE
- o REGION NAME
- o PLANT CATEGORY CODE
- o PLANT CATEGORY NAME

FISCAL
- # FISCAL PERIOD SID
- · FISCAL VARIANT CODE
- · FISCAL YEAR VALUE
- · FISCAL QUARTER
- · POSTING PERIOD NUMBER
- · FISCAL DATE
- o POSTING PERIOD COUNT
- o POSTING PERIOD END DATE
- o POSTING PERIOD START DATE
- · FISCAL VARIANT NAME
- · DEFAULT FISCAL VARIANT COD

ALL TIME

TIME
- # TIME SID
- · CALENDAR DATE
- · CALENDAR WEEKDAY
- · CALENDAR DAY
- · CALENDAR WEEK
- · CALENDAR MONTH
- · CALENDAR FISCAL PERIO
- ...

UNIT OF MEASURE
- # UNIT OF MEASURE SID
- · UNIT OF MEASURE CODE
- · UNIT OF MEASURE TEXT
- o ISO CODE
- o ISO MEASUREMENT NAME
- o DIMENSION KEY
- o DIMENSION TEXT
- o CREATED DATE
- o CHANGED DATE

MATERIAL MOVEMENT
- · PURCHASE ORDER NUMBER
- · PURCHASE ORDER ITEM NUMBER
- · DOCUMENT DATE
- o EXPIRATION DATE
- · GROUP CURRENCY VALUE
- · MOVEMENT QUANTITY
- o CREATED DATE
- o CHANGED DATE

MOVEMENT DOCUMENT
- # MOVEMENT DOCUMENT SID
- · DOCUMENT NUMBER
- · DOCUMENT YEAR
- · DOCUMENT ITEM NUMBER
- · LOCAL CURRENCY CODE
- · LOCAL CURRENCY VALUE
- · HEADER DESCRIPTION
- · ITEM DESCRIPTION
- o DOCUMENT UNIT QUANTITY
- · FISCAL VARIANT
- · USER NAME
- · HOUR OF DAY
- · POSTING DATE

VENDOR
- # VENDOR SID
- · VENDOR ACCOUNT NUMBER
- · COMPANY CODE
- · PURCHASING ORGANIZATION CODE
- o VENDOR NAME
- o VENDOR SHORT NAME
- o CITY
- o DISTRICT
- o POSTAL CODE
- o REGION CODE
- o REGION NAME
- o COUNTRY CODE
- o COUNTRY NAME
- o INDUSTRY CODE
- o INDUSTRY DESCRIPTION
- o PLAN GROUP CODE
- o PLAN GROUP NAME
- · ABC INDICATOR
- · CREATED DATE
- · CHANGED DATE

VALUATION
- # VALUATION SID
- · MATERIAL ID
- · VALUATION AREA CODE
- · VALUATION TYPE CODE
- · PRICE CONTROL CODE
- · PRICE CONTROL DESCRIPTION
- · LOCAL CURRENCY CODE
- · GROUP CURRENCY CODE
- · LOCAL CURRENCY VALUE

MATERIAL
- # MATERIAL SID
- · MATERIAL ID
- · MATERIAL DESCRIPTION
- · MATERIAL TYPE CODE
- o INDUSTRY STANDARD DESCRIPTION
- o MATERIAL TYPE DESCRIPTION
- o MATERIAL CATEGORY CODE
- o MATERIAL CATEGORY DESCRIPTION
- o MATERIAL GROUP CODE
- o MATERIAL GROUP DESCRIPTION
- o INDUSTRY SECTOR CODE
- o INDUSTRY SECTOR DESCRIPTION
- o PRICE BAND CATEGORY CODE
- o PRICE BAND CATEGORY DESCRIPTION
- o DIVISION CODE
- o DIVISION NAME
- · PRICE REFERENCE MATERIAL ID
- · BASE UOM CODE
- o ORDER UNIT CODE
- o LENGTH
- o WIDTH
- o HEIGHT
- o UNIT OF DIMENSION CODE
- · NET WEIGHT
- · UNIT OF WEIGHT CODE
- o VOLUME
- o UNIT OF VOLUME CODE
- o DELETION_FLAG
- · VALIDITY DATE
- o DELETION DATE

Relationship labels: material movement, material storage, stock class, storage bin, plant, movement class, batch, vendor, unit of measure, movement document, material, valuation, reverse plant

FIGURE 15L

STOCK CLASS
STOCK CLASS SID
* STOCK TYPE CODE
o SPECIAL STOCK CODE
o STOCK TYPE DESCRIPTION
o SPECIAL STOCK DESCRIPTION
o BLOCKED MULTIPLIER
o QI MULTIPLIER
o CUST CONSIGN MULTIPLIER
o VENDOR CONSIGN MULTIPLIER
o UNRESTRICTED MULTIPLIER
o OVERALL STATUS LEVEL 1
o OVERALL STATUS LEVEL 2
o OVERALL STATUS LEVEL 3
o OVERALL STATUS LEVEL 4
o OVERALL STATUS LEVEL 5
o USER MULTIPLIER 1
o USER MULTIPLIER 2
o USER MULTIPLIER 3

MATERIAL STORAGE
PLANT MATERIAL SID
* MATERIAL ID
. PLANT ID
o SPECIAL PROCUREMENT TYPE CODE
o SPECIAL PROCUREMENT DESCRIPTION
o UOM CODE
o MRP PROFILE CODE
o MRP CONTROLLER CODE
o MRP CONTROLLER NAME
o VALUATION CATEGORY CODE
o VALUATION CATEGORY DESCRIPTION
o REPLENISHMENT LEAD-TIME
o REORDER POINT QUANTITY
o MAXIMUM STOCK QUANTITY
o SAFETY STOCK QUANTITY
o SHELF LIFE EXPIRATION DATE
o ABC INDICATOR
o PURCHASING GROUP CODE

STORAGE BIN
STORAGE BIN SID
o WAREHOUSE NUMBER
o WAREHOUSE NAME
o STORAGE TYPE CODE
o STORAGE TYPE DESCRIPTION
. STORAGE BIN ID
o STORAGE SECTION ID
o STORAGE SECTION NAME
o BIN TYPE CODE
o BIN TYPE DESCRIPTION
o BIN SECTION ID
o BIN UNIT NUMBER
o BIN UNIT MAXIMUM NUMBER
o DYNAMIC BIN INDICATOR
o BIN LOAD CAPACITY
o BLOCK INDICATOR
o BLOCK REASON CODE
o BLOCK REASON DESCRIPTION
o BIN QUANTS
o BIN QUANTS MAXIMUM
o WEIGHT UNIT
o INVENTORY METHOD CODE
o INVENTORY METHOD DESCRIPTIO
o INVENTORY PREPARATION

MOVEMENT CLASS
MOVEMENT CLASS SID
* DOCUMENT TYPE CODE
o DOCUMENT TYPE DESCRIPTION
o MOVEMENT TYPE CODE
o SPECIAL STOCK INDICATOR
o MOVEMENT INDICATOR
o RECEIPT INDICATOR
o CONSUMPTION INDICATOR
o MOVEMENT TYPE DESCRIPTION
o BLOCKED MULTIPLIER
o CONSUMPTION MULTIPLIER
o INSPECTION MULTIPLIER
o REVERSAL MULTIPLIER
o INDEPENDENT REQUIREMENTS MULTIPL
o MART INCLUDE MULTIPLIER
o GOODS ISSUE MULTIPLIER
o GOODS RECEIPT MULTIPLIER

PLANT
PLANT SID
* PLANT ID
o STORAGE LOCATION CODE
o UNLOADING POINT NAME
o PLANT NAME
o POSTAL CODE
o CITY CODE
o CITY NAME
o COUNTRY CODE
o COUNTRY NAME
o COUNTY CODE
o COUNTY NAME
o REGION CODE
o REGION NAME
o PLANT CATEGORY CODE
o PLANT CATEGORY NAME

BATCH
BATCH SID
* MATERIAL ID
. PLANT ID
o BATCH NUMBER
o AVAILABILITY DATE
o SHELF LIFE EXPIRATION DATE
o BATCH STATUS CODE
o RESTRICTED USE INDICATOR
o VENDOR ACCOUNT NUMBER
o VENDOR BATCH NUMBER

FISCAL
FISCAL PERIOD SID
* FISCAL VARIANT CODE
* FISCAL YEAR VALUE
* FISCAL QUARTER
* FISCAL DATE
. POSTING PERIOD NUMBER
. POSTING PERIOD COUNT
. POSTING PERIOD END DATE
. POSTING PERIOD START DATE
. FISCAL VARIANT NAME
. DEFAULT FISCAL VARIANT COD

ALL TIME

TIME
TIME SID
* CALENDAR DATE
. CALENDAR WEEKDAY
. CALENDAR DAY
. CALENDAR WEEK
. CALENDAR MONTH
. CALENDAR FISCAL PERIO

UNIT OF MEASURE
UNIT OF MEASURE SID
* UNIT OF MEASURE CODE
. UNIT OF MEASURE TEXT
o ISO CODE
o ISO MEASUREMENT NAME
o DIMENSION KEY
o DIMENSION TEXT
o CREATED DATE
o CHANGED DATE

PHYSICAL INVENTORY
* DOCUMENT NUMBER
* DOCUMENT ITEM NUMBER
* INVENTORY FISCAL YEAR
o BOOK STOCK LEVEL COUNT
o BOOK STOCK DOCUMENT CUR EXTNDD VAL AMT
o BOOK STOCK GROUP CURRENCY EXTNDD VAL AMT
o BOOK STOCK LOCAL CURRENCY EXTNDD VAL AMT
o PHYSICAL INVENTORY COUNT
o PHYSICAL INVENTORY GRP CUR EXTND VAL AMT
o FINAL COUNT INDICATOR
o ABSOLUTE STOCK ACCURACY PERCENTAGE
o RELATIVE STOCK ACCURACY PERCENTAGE
o USER NAME
LAST COUNT DATE SID

MOVEMENT DOCUMENT
MOVEMENT DOCUMENT SID
* DOCUMENT NUMBER
* DOCUMENT YEAR
* DOCUMENT ITEM NUMBER
o LOCAL CURRENCY CODE
o LOCAL CURRENCY VALUE
o HEADER DESCRIPTION
o ITEM DESCRIPTION
o DOCUMENT UNIT QUANTITY
o FISCAL VARIANT
o USER NAME
o HOUR OF DAY
o POSTING DATE

VALUATION
VALUATION SID
* MATERIAL ID
. VALUATION AREA CODE
. VALUATION TYPE CODE
o PRICE CONTROL CODE
o PRICE CONTROL DESCRIPTION
o LOCAL CURRENCY CODE
o GROUP CURRENCY CODE
o LOCAL CURRENCY VALUE

VENDOR
VENDOR SID
* VENDOR ACCOUNT NUMBER
. PURCHASING ORGANIZATION CODE
. COMPANY CODE
o VENDOR NAME
o VENDOR SHORT NAME
o CITY
o DISTRICT
o POSTAL CODE
o REGION CODE
o REGION NAME
o COUNTRY CODE
o COUNTRY NAME
o INDUSTRY CODE
o INDUSTRY DESCRIPTION
o PLAN GROUP CODE
o PLAN GROUP NAME
o ABC INDICATOR
o CREATED DATE
. CHANGED DATE

MATERIAL
MATERIAL SID
* MATERIAL ID
. MATERIAL DESCRIPTION
. MATERIAL TYPE CODE
o INDUSTRY STANDARD DESCRIPTION
o MATERIAL TYPE DESCRIPTION
o MATERIAL CATEGORY CODE
o MATERIAL CATEGORY DESCRIPTION
o MATERIAL GROUP CODE
o MATERIAL GROUP DESCRIPTION
o INDUSTRY SECTOR CODE
o INDUSTRY SECTOR DESCRIPTION
o PRICE BAND CATEGORY CODE
o PRICE BAND CATEGORY DESCRIPTION
o DIVISION CODE
o DIVISION NAME
o PRICE REFERENCE MATERIAL IC
. BASE UOM CODE
. ORDER UNIT CODE
o LENGTH
o WIDTH
o HEIGHT
o UNIT OF DIMENSION CODE
. NET WEIGHT
. UNIT OF WEIGHT CODE
o VOLUME
o UMT OF VOLUME CODE
o DELETION_FLAG
o VALIDITY DATE
o DELETION DATE

FIGURE 15 M

STOCK CLASS
STOCK CLASS SID
* STOCK TYPE CODE
* SPECIAL STOCK CODE
* STOCK TYPE DESCRIPTION
* SPECIAL STOCK DESCRIPTION
o BLOCKED MULTIPLIER
o QI MULTIPLIER
o CUST CONSIGN MULTIPLIER
o VENDOR CONSIGN MULTIPLIER
o UNRESTRICTED MULTIPLIER
o OVERALL STATUS LEVEL 1
o OVERALL STATUS LEVEL 2
o OVERALL STATUS LEVEL 3
o OVERALL STATUS LEVEL 4
o OVERALL STATUS LEVEL 5
o USER MULTIPLIER 1
o USER MULTIPLIER 2
o USER MULTIPLIER 3

MATERIAL STORAGE
PLANT MATERIAL SID
* MATERIAL ID
* PLANT ID
o SPECIAL PROCUREMENT TYPE CODE
o SPECIAL PROCUREMENT DESCRIPTION
o UOM CODE
o MRP PROFILE CODE
o MRP CONTROLLER CODE
o MRP CONTROLLER NAME
o VALUATION CATEGORY CODE
o VALUATION CATEGORY DESCRIPTION
o REPLENISHMENT LEAD-TIME
o REORDER POINT QUANTITY
o MAXIMUM STOCK QUANTITY
o SAFETY STOCK QUANTITY
o SHELF LIFE EXPIRATION DATE
o ABC INDICATOR
o PURCHASING GROUP CODE

STORAGE BIN
STORAGE BIN SID
* WAREHOUSE NUMBER
* WAREHOUSE NAME
* STORAGE TYPE CODE
o STORAGE TYPE DESCRIPTION
* STORAGE BIN ID
o STORAGE SECTION ID
o STORAGE SECTION NAME
o BIN TYPE CODE
o BIN TYPE DESCRIPTION
o BIN SECTION ID
o BIN UNIT NUMBER
o BIN UNIT MAXIMUM NUMBER
o DYNAMIC BIN INDICATOR
o BIN LOAD CAPACITY
o BLOCK INDICATOR
o BLOCK REASON CODE
o BLOCK REASON DESCRIPTION
o BIN QUANTS
o BIN QUANTS MAXIMUM
o WEIGHT UNIT
o INVENTORY METHOD CODE
o INVENTORY METHOD DESCRIPTI
o INVENTORY PREPARATION

MOVEMENT CLASS
MOVEMENT CLASS SID
* DOCUMENT TYPE CODE
* DOCUMENT TYPE DESCRIPTION
* MOVEMENT TYPE CODE
* SPECIAL STOCK INDICATOR
* MOVEMENT INDICATOR
* RECEIPT INDICATOR
o CONSUMPTION INDICATOR
o MOVEMENT TYPE DESCRIPTION
o BLOCKED MULTIPLIER
o CONSUMPTION MULTIPLIER
o INSPECTION MULTIPLIER
o REVERSAL MULTIPLIER
o INDEPENDENT REQUIREMENTS MULTIPL
o MART INCLUDE MULTIPLIER
o GOODS ISSUE MULTIPLIER
o GOODS RECEIPT MULTIPLIER

PLANT
PLANT SID
* PLANT ID
o STORAGE LOCATION CODE
o UNLOADING POINT NAME
o PLANT NAME
o POSTAL CODE
o CITY CODE
o CITY NAME
o COUNTRY CODE
o COUNTRY NAME
o COUNTY CODE
o COUNTY_NAME
o REGION CODE
o REGION NAME
o PLANT CATEGORY CODE
o PLANT CATEGORY NAME

BATCH
BATCH SID
* MATERIAL ID
* PLANT ID
* BATCH NUMBER
o AVAILABILITY DATE
o SHELF LIFE EXPIRATION DATE
o BATCH STATUS CODE
o RESTRICTED USE INDICATOR
o VENDOR ACCOUNT NUMBER
o VENDOR BATCH NUMBER

UNIT OF MEASURE
UNIT OF MEASURE SID
* UNIT OF MEASURE CODE
* UNIT OF MEASURE TEXT
o ISO CODE
o ISO MEASUREMENT NAME
o DIMENSION KEY
o DIMENSION TEXT
* CREATED DATE
o CHANGED DATE

FISCAL
FISCAL PERIOD SID
* FISCAL VARIANT CODE
* FISCAL YEAR VALUE
* FISCAL QUARTER
* POSTING PERIOD NUMBER
* FISCAL DATE
o POSTING PERIOD COUNT
o POSTING PERIOD END DATE
o POSTING PERIOD START DATE
* FISCAL VARIANT NAME
o DEFAULT FISCAL VARIANT COD

ALL TIME

TIME
TIME SID
* CALENDAR DATE
o CALENDAR WEEKDAY
o CALENDAR DAY
o CALENDAR WEEK
o CALENDAR MONTH
o CALENDAR FISCAL PERIO

MATERIAL RESERVATION
DOCUMENT NUMBER
DOCUMENT ITEM NUMBER
* RESERVATION DATE
* RESERVED QUANTITY
o RESERVED QUANTITY DOC CUR EXTNDD VAL AMT
o RESERVED QUANTITY GRP CUR EXTNDD VAL AMT
o RESERVED QUANTITY LCL CUR EXTNDD VAL AMT
* CONFIRMED QUANTITY
o WITHDRAWN QUANTITY
o CONFIRMED QUANTITY GRP CUR EXTND VAL AMT
o WITHDRAWN QUANTITY GRP CUR EXTND VAL AMT
o DOCUMENT CURRENCY CODE
o GROUP CURRENCY CODE
o DOCUMENT CURRENCY CONVERSION RATE
o LOCAL CURRENCY CODE
o LOCAL CURRENCY CONVERSION RATE
* USER NAME
o DELETION INDICATOR
* FINAL ISSUE INDICATOR

MOVEMENT DOCUMENT
MOVEMENT DOCUMENT SID
* DOCUMENT NUMBER
* DOCUMENT YEAR
* DOCUMENT ITEM NUMBER
o LOCAL CURRENCY CODE
o LOCAL CURRENCY VALUE
o HEADER DESCRIPTION
o ITEM DESCRIPTION
o DOCUMENT UNIT QUANTITY
o FISCAL VARIANT
* USER NAME
o HOUR OF DAY
o POSTING DATE

VALUATION
VALUATION SID
* MATERIAL ID
* VALUATION AREA CODE
* VALUATION TYPE CODE
o PRICE CONTROL CODE
o PRICE CONTROL DESCRIPTION
o LOCAL CURRENCY CODE
o GROUP CURRENCY CODE
o LOCAL CURRENCY VALUE

VENDOR
VENDOR SID
* VENDOR ACCOUNT NUMBER
o COMPANY CODE
o PURCHASING ORGANIZATION CODE
o VENDOR NAME
o VENDOR SHORT NAME
o CITY
o DISTRICT
o POSTAL CODE
o REGION CODE
o REGION NAME
o COUNTRY CODE
o COUNTRY NAME
o INDUSTRY CODE
o INDUSTRY DESCRIPTION
o PLAN GROUP CODE
o PLAN GROUP NAME
o ABC INDICATOR
* CREATED DATE
o CHANGED DATE

MATERIAL
MATERIAL SID
* MATERIAL ID
* MATERIAL DESCRIPTION
o MATERIAL TYPE CODE
o INDUSTRY STANDARD DESCRIPTION
o MATERIAL TYPE DESCRIPTION
o MATERIAL CATEGORY CODE
o MATERIAL CATEGORY DESCRIPTION
o MATERIAL GROUP CODE
o MATERIAL GROUP DESCRIPTION
o INDUSTRY SECTOR CODE
o INDUSTRY SECTOR DESCRIPTION
o PRICE BAND CATEGORY CODE
o PRICE BAND CATEGORY DESCRIPTION
o DIVISION CODE
o DIVISION NAME
o PRICE REFERENCE MATERIAL ID
o BASE UOM CODE
o ORDER UNIT CODE
o LENGTH
o WIDTH
o HEIGHT
o UNIT OF DIMENSION CODE
o NET WEIGHT
o VOLUME
o UNIT OF WEIGHT CODE
o UNIT OF VOLUME CODE
o DELETION FLAG
o VALIDITY DATE
o DELETION DATE

FIGURE 15N

STOCK CLASS
STOCK CLASS SID
· STOCK TYPE CODE
· SPECIAL STOCK CODE
· STOCK TYPE DESCRIPTION
· SPECIAL STOCK DESCRIPTION
· BLOCKED MULTIPLIER
o QI MULTIPLIER
o CUST CONSIGN MULTIPLIER
o VENDOR CONSIGN MULTIPLIER
o UNRESTRICTED MULTIPLIER
o OVERALL STATUS LEVEL 1
o OVERALL STATUS LEVEL 2
o OVERALL STATUS LEVEL 3
o OVERALL STATUS LEVEL 4
o OVERALL STATUS LEVEL 5
o USER MULTIPLIER 1
o USER MULTIPLIER 2
o USER MULTIPLIER 3

MATERIAL STORAGE
PLANT MATERIAL SID
· MATERIAL ID
· PLANT ID
o SPECIAL PROCUREMENT TYPE CODE
o SPECIAL PROCUREMENT DESCRIPTION
o UOM CODE
o MRP PROFILE CODE
o MRP CONTROLLER CODE
o MRP CONTROLLER NAME
o VALUATION CATEGORY CODE
o VALUATION CATEGORY DESCRIPTION
o REPLENISHMENT LEAD-TIME
o REORDER POINT QUANTITY
o MAXIMUM STOCK QUANTITY
o SAFETY STOCK QUANTITY
o SHELF LIFE EXPIRATION DATE
o ABC INDICATOR
o PURCHASING GROUP CODE

STORAGE BIN
STORAGE BIN SID
· WAREHOUSE NUMBER
· WAREHOUSE NAME
o STORAGE TYPE CODE
o STORAGE TYPE DESCRIPTION
o STORAGE BIN ID
o STORAGE SECTION ID
o STORAGE SECTION NAME
o BIN TYPE CODE
o BIN TYPE DESCRIPTION
o BIN SECTION ID
o BIN UNIT NUMBER
o BIN UNIT MAXIMUM NUMBER
o DYNAMIC BIN INDICATOR
o BIN LOAD CAPACITY
o BLOCK INDICATOR
o BLOCK REASON CODE
o BLOCK REASON DESCRIPTION
o BIN QUANTS
o BIN QUANTS MAXIMUM
o WEIGHT UNIT
o INVENTORY METHOD CODE
o INVENTORY METHOD DESCRIPTI
o INVENTORY PREPARATION

MOVEMENT CLASS
MOVEMENT CLASS SID
· DOCUMENT TYPE CODE
· DOCUMENT TYPE DESCRIPTION
· MOVEMENT TYPE CODE
· SPECIAL STOCK INDICATOR
· MOVEMENT INDICATOR
· RECEIPT INDICATOR
o CONSUMPTION INDICATOR
o MOVEMENT TYPE DESCRIPTION
o BLOCKED MULTIPLIER
o CONSUMPTION MULTIPLIER
o INSPECTION MULTIPLIER
o REVERSAL MULTIPLIER
o INDEPENDENT REQUIREMENTS MULTIPL
o MART INCLUDE MULTIPLIER
o GOODS ISSUE MULTIPLIER
o GOODS RECEIPT MULTIPLIER

BATCH
BATCH SID
· MATERIAL ID
· PLANT ID
· BATCH NUMBER
o AVAILABILITY DATE
o SHELF LIFE EXPIRATION DATE
o BATCH DATE
o BATCH STATUS CODE
o RESTRICTED USE INDICATOR
o VENDOR ACCOUNT NUMBER
o VENDOR BATCH NUMBER

FISCAL
FISCAL PERIOD SID
· FISCAL VARIANT CODE
· FISCAL YEAR VALUE
· FISCAL QUARTER
· POSTING PERIOD NUMBER
· FISCAL DAY
o POSTING PERIOD COUNT
o POSTING PERIOD END DATE
o POSTING PERIOD START DATE
· FISCAL VARIANT NAME
o DEFAULT FISCAL VARIANT COD

ALL TIME

TIME
TIME SID
· CALENDAR DATE
· CALENDAR WEEKDAY
· CALENDAR DAY
· CALENDAR WEEK
· CALENDAR MONTH
o CALENDAR FISCAL PERIO

UNIT OF MEASURE
UNIT OF MEASURE SID
· UNIT OF MEASURE CODE
· UNIT OF MEASURE TEXT
o ISO CODE
o ISO MEASUREMENT NAME
o DIMENSION KEY
o DIMENSION TEXT
o CREATED DATE
o CHANGED DATE

PLANT
PLANT SID
· PLANT ID
o STORAGE LOCATION CODE
o UNLOADING POINT NAME
o PLANT NAME
o POSTAL CODE
o CITY CODE
o CITY NAME
o COUNTRY CODE
o COUNTRY NAME
o COUNTY CODE
o COUNTY NAME
o REGION CODE
o REGION NAME
o PLANT CATEGORY CODE
o PLANT CATEGORY NAME

MOVEMENT DOCUMENT
MOVEMENT DOCUMENT SID
· DOCUMENT NUMBER
· DOCUMENT YEAR
· DOCUMENT ITEM NUMBER
· LOCAL CURRENCY CODE
· LOCAL CURRENCY VALUE
· HEADER DESCRIPTION
· ITEM DESCRIPTION
· DOCUMENT UNIT QUANTITY
· FISCAL VARIANT
· USER NAME
· HOUR OF DAY
· POSTING DATE

STOCK OVERVIEW
CALENDAR MONTH
· ABSOLUTE STOCK ACCURACY PERCENTAGE
· AVERAGE STOCK LEVEL
· AVERAGE UNRESTRICTED STOCK LEVEL
· CLOSING STOCK LEVEL
· CLOSING UNRESTRICTED STOCK LEVEL
· CUMULATIVE USAGE QUANTITY
· FORECAST USAGE QUANTITY
· LAST USED DATE
· MAXIMUM STOCK LEVEL
· MAXIMUM UNRESTRICTED STOCK LEVEL
· MINIMUM STOCK LEVEL
· MINIMUM UNRESTRICTED STOCK LEVEL
· MOVING AVERAGE STOCK LEVEL
· MOVING AVERAGE USAGE QUANTITY
· MOVING AVG UNRESTRICTED STOCK LEVEL
· OPENING STOCK LEVEL

VALUATION
VALUATION SID
· MATERIAL ID
· VALUATION AREA CODE
· VALUATION TYPE CODE
· PRICE CONTROL CODE
· PRICE CONTROL DESCRIPTION
· LOCAL CURRENCY CODE
· GROUP CURRENCY CODE
· LOCAL CURRENCY VALUE

VENDOR
VENDOR SID
· VENDOR ACCOUNT NUMBER
· COMPANY CODE
o PURCHASING ORGANIZATION CODE
o VENDOR NAME
o VENDOR SHORT NAME
o CITY
o DISTRICT
o POSTAL CODE
o REGION CODE
o REGION NAME
o COUNTRY CODE
o COUNTRY NAME
o INDUSTRY CODE
o INDUSTRY DESCRIPTION
o PLAN GROUP CODE
o PLAN GROUP NAME
o ABC INDICATOR
· CREATED DATE
· CHANGED DATE

MATERIAL
MATERIAL SID
· MATERIAL ID
· MATERIAL DESCRIPTION
· MATERIAL TYPE CODE
o INDUSTRY STANDARD DESCRIPTION
o MATERIAL TYPE DESCRIPTION
o MATERIAL CATEGORY CODE
o MATERIAL CATEGORY DESCRIPTION
o MATERIAL GROUP CODE
o MATERIAL GROUP DESCRIPTION
o INDUSTRY SECTOR CODE
o INDUSTRY SECTOR DESCRIPTION
o PRICE BAND CATEGORY CODE
o PRICE BAND CATEGORY DESCRIPTION
o DIVISION CODE
o DIVISION NAME
o PRICE REFERENCE MATERIAL ID
o BASE UOM CODE
o ORDER UNIT CODE
o LENGTH
o WIDTH
o HEIGHT
o UNIT OF DIMENSION CODE
· NET WEIGHT
· UNIT OF WEIGHT CODE
· VOLUME
o UNIT OF VOLUME CODE
o DELETION FLAG
o VALIDITY DATE
o DELETION DATE

material storage
stock overview
plant
unit of measure
material
valuation
stock overview
movement document
reverse plant
unit of measure
movement document

FIGURE 15 0

FIGURE 15P

STOCK CLASS
STOCK CLASS SID
* STOCK TYPE CODE
o SPECIAL STOCK CODE
o STOCK TYPE DESCRIPTION
o SPECIAL STOCK DESCRIPTION
o BLOCKED MULTIPLIER
o QI MULTIPLIER
o CUST CONSIGN MULTIPLIER
o VENDOR CONSIGN MULTIPLIER
o UNRESTRICTED MULTIPLIER
o OVERALL STATUS LEVEL 1
o OVERALL STATUS LEVEL 2
o OVERALL STATUS LEVEL 3
o OVERALL STATUS LEVEL 4
o OVERALL STATUS LEVEL 5
o USER MULTIPLIER 1
o USER MULTIPLIER 2
o USER MULTIPLIER 3

MATERIAL STORAGE
PLANT MATERIAL SID
* MATERIAL ID
* PLANT ID
o SPECIAL PROCUREMENT TYPE CODE
o SPECIAL PROCUREMENT DESCRIPTION
o UOM CODE
o MRP PROFILE CODE
o MRP CONTROLLER CODE
o MRP CONTROLLER NAME
o VALUATION CATEGORY CODE
o VALUATION CATEGORY DESCRIPTION
o REPLENISHMENT LEAD-TIME
o REORDER POINT QUANTITY
o MAXIMUM STOCK QUANTITY
o SAFETY STOCK QUANTITY
o SHELF LIFE EXPIRATION DATE
o ABC INDICATOR
o PURCHASING GROUP CODE

STORAGE BIN
STORAGE BIN SID
* WAREHOUSE NUMBER
* WAREHOUSE NAME
* STORAGE TYPE CODE
o STORAGE TYPE DESCRIPTION
o STORAGE BIN ID
o STORAGE SECTION ID
o STORAGE SECTION NAME
o BIN TYPE CODE
o BIN TYPE DESCRIPTION
o BIN SECTION ID
o BIN UNIT NUMBER
o BIN UNIT MAXIMUM NUMBER
o DYNAMIC BIN INDICATOR
o BIN LOAD CAPACITY
o BLOCK INDICATOR
o BLOCK REASON CODE
o BLOCK REASON DESCRIPTION
o BIN QUANTS
o BIN QUANTS MAXIMUM
o WEIGHT UNIT
o INVENTORY METHOD CODE
o INVENTORY METHOD DESCRIPTI
o INVENTORY PREPARATION

MOVEMENT CLASS
MOVEMENT CLASS SID
* DOCUMENT TYPE CODE
o DOCUMENT TYPE DESCRIPTION
* MOVEMENT TYPE CODE
* MOVEMENT INDICATOR
* RECEIPT INDICATOR
o SPECIAL STOCK INDICATOR
o CONSUMPTION INDICATOR
o MOVEMENT TYPE DESCRIPTION
o BLOCKED MULTIPLIER
o CONSUMPTION MULTIPLIER
o INSPECTION MULTIPLIER
o REVERSAL MULTIPLIER
o INDEPENDENT REQUIREMENTS MULTIPL
o MART INCLUDE MULTIPLIER
o GOODS ISSUE MULTIPLIER
o GOODS RECEIPT MULTIPLIER

BATCH
BATCH SID
* MATERIAL ID
* PLANT ID
* BATCH NUMBER
o AVAILABILITY DATE
o SHELF LIFE EXPIRATION DATE
o BATCH STATUS CODE
o RESTRICTED USE INDICATOR
o VENDOR ACCOUNT NUMBER
o VENDOR BATCH NUMBER

FISCAL
FISCAL PERIOD SID
* FISCAL VARIANT CODE
* FISCAL YEAR VALUE
* FISCAL QUARTER
* POSTING PERIOD NUMBER
* FISCAL DATE
o POSTING PERIOD COUNT
o POSTING PERIOD END DATE
o POSTING PERIOD START DATE
o FISCAL VARIANT NAME
o DEFAULT FISCAL VARIANT COD

ALL TIME

TIME
TIME SID
* CALENDAR DATE
* CALENDAR WEEKDAY
* CALENDAR DAY
* CALENDAR WEEK
* CALENDAR MONTH
* CALENDAR FISCAL PERIOD

STOCK USAGE FORECAST
FORECAST FIRST DAY DATE
* MODIFIED FORECAST FIRST DAY DATE
* FORECAST PERIOD NUMBER
* FORECAST VALUE
* CORRECTED VALUE
* SEASONAL INDEX VALUE
o CREATED DATE
o CHANGED DATE

UNIT OF MEASURE
UNIT OF MEASURE SID
* UNIT OF MEASURE CODE
* UNIT OF MEASURE TEXT
* ISO CODE
o ISO MEASUREMENT NAME
o DIMENSION KEY
o DIMENSION TEXT
o CREATED DATE
o CHANGED DATE

PLANT
PLANT SID
* PLANT ID
o STORAGE LOCATION CODE
o UNLOADING POINT NAME
o PLANT NAME
o POSTAL CODE
o CITY CODE
o CITY NAME
o COUNTRY CODE
o COUNTRY NAME
o COUNTY CODE
o COUNTY_NAME
o REGION CODE
o REGION NAME
o PLANT CATEGORY CODE
o PLANT CATEGORY NAME

MOVEMENT DOCUMENT
MOVEMENT DOCUMENT SID
* DOCUMENT NUMBER
* DOCUMENT YEAR
* DOCUMENT ITEM NUMBER
o LOCAL CURRENCY CODE
o LOCAL CURRENCY VALUE
o HEADER DESCRIPTION
o ITEM DESCRIPTION
o DOCUMENT UNIT QUANTITY
o FISCAL VARIANT
o USER NAME
o HOUR OF DAY
o POSTING DATE

STOCK USAGE FORECAST VERSION
o CREATED DATE
o CHANGED DATE
* FORECAST VERSION SID
* FORECAST VERSION ID
* FORECAST VERSION NAME
* FORECAST POINTER
o HISTORY NUMBER
o FORECAST MODEL CODE
o FORECAST MODEL NAME

VALUATION
VALUATION SID
* MATERIAL ID
* VALUATION AREA CODE
* VALUATION TYPE CODE
* PRICE CONTROL CODE
o PRICE CONTROL DESCRIPTION
o LOCAL CURRENCY CODE
o GROUP CURRENCY CODE
o LOCAL CURRENCY VALUE

VENDOR
VENDOR SID
* VENDOR ACCOUNT NUMBER
* COMPANY CODE
* PURCHASING ORGANIZATION CODE
o VENDOR NAME
o VENDOR SHORT NAME
o CITY
o DISTRICT
o POSTAL CODE
o REGION CODE
o REGION NAME
o COUNTRY CODE
o COUNTRY NAME
o INDUSTRY CODE
o INDUSTRY DESCRIPTION
o PLAN GROUP CODE
o PLAN GROUP NAME
o ABC INDICATOR
* CREATED DATE
* CHANGED DATE

MATERIAL
MATERIAL SID
* MATERIAL ID
* MATERIAL DESCRIPTION
* MATERIAL TYPE CODE
o INDUSTRY STANDARD DESCRIPTION
o MATERIAL TYPE DESCRIPTION
o MATERIAL CATEGORY CODE
o MATERIAL CATEGORY DESCRIPTION
o MATERIAL GROUP CODE
o MATERIAL GROUP DESCRIPTION
o INDUSTRY SECTOR CODE
o INDUSTRY SECTOR DESCRIPTION
o PRICE BAND CATEGORY CODE
o PRICE BAND CATEGORY DESCRIPTION
o DIVISION CODE
o DIVISION NAME
o PRICE REFERENCE MATERIAL ID
o BASE UOM CODE
o ORDER UNIT CODE
o LENGTH
o WIDTH
o HEIGHT
o UNIT OF DIMENSION CODE
o NET WEIGHT
o UNIT OF WEIGHT CODE
o VOLUME
o UNIT OF VOLUME CODE
o DELETION_FLAG
o VALIDITY DATE
o DELETION DATE

Relationship labels: stock usage forecast · material storage dim · plant dim · base uom dim · material dim · time dim first day · planning version · stock usage forecast first day · movement document · unit of measure · reverse plant

PLANT
- # PLANT SID
- · PLANT IDENTIFIER
- o STORAGE LOCATION CODE
- · SPECIAL STOCK CODE
- o UNLOADING POINT NAME
- · PLANT NAME
- · SPECIAL STOCK DESCRIPTION
- o POSTAL CODE
- o CITY CODE
- o CITY NAME
- o COUNTRY CODE
- · COUNTRY NAME
- o COUNTY CODE

MATERIAL
- # MATERIAL SID
- · BASE UNIT OF MEASURE CODE
- · CHANGED DATE
- o COMPANY CODE
- · COMPANY NAME
- · CREATED DATE
- o DELETION DATE
- o DELETION FLAG
- o DIMENSION UNIT OF MEASURE CODE
- o DIVISION CODE
- · DIVISION NAME
- o GL CATEGORY CODE
- · GL CATEGORY DESCRIPTION
- · HEIGHT
- · HEIGHT UNIT OF MEASURE CODE
- · INDUSTRY SECTOR CODE

PROCUREMENT DOCUMENT CLASS
- # PROCUREMENT DOCUMENT CLASS
- o DOCUMENT TYPE CODE
- · DOCUMENT TYPE NAME
- · DOCUMENT LINE TYPE CODE
- · DOCUMENT LINE TYPE DESCRIPTION
- o REQUISITION MULTIPLIER
- o QUOTATION MULTIPLIER
- o PURCHASE ORDER MULTIPLIER
- o CONTRACT MULTIPLIER
- o USER MULTIPLIER 1
- o USER MULTIPLIER 2
- o USER MULTIPLIER 3

CUSTOMER
- # CUSTOMER SID
- o ACCOUNT ASSIGNMENT GROUP
- o ACCOUNT NUMBER
- o ADDRESS IDENTIFIER
- o BILLING BLOCK CODE
- · CITY NAME
- o COUNTRY CODE
- o COUNTRY NAME
- o COUNTY CODE
- · COUNTY NAME
- · CURRENCY CODE
- o CUSTOMER CLASSIFICATION CODE
- · CUSTOMER CLASSIFICATION NAME
- o CUSTOMER GROUP CODE
- · CUSTOMER GROUP NAME
- · CUSTOMER HIERARCHY LEVEL NUMBER
- · CUSTOMER MERCHANT NUMBER
- o CUSTOMER IDENTIFIER
- · CUSTOMER LONG NAME
- · CUSTOMER NAME

COST CENTER
- # COST CENTER SID
- · COST CENTER CODE
- · CHANGED DATE
- · CONTROLLING AREA KEY CODE
- · CONTROLLING AREA NAME
- · COST CENTER DEPARTMENT CODE
- · COST CENTER DEPARTMENT NAME
- · COST CENTER DESCRIPTION
- · COST CENTER LEAF LEVEL NUMBER
- · COST CENTER MANAGER NAME

FINANCIAL CURRENCY CONVERSION
- # FROM CURRENCY CODE
- # TO CURRENCY CODE
- # FISCAL PERIOD SID
- · FISCAL VARIANT CODE
- · FISCAL YEAR VALUE
- · POSTING PERIOD NUMBER
- · POSTING PERIOD END DATE
- · RATE PUBLISHED DATE
- · BASE CURRENCY CODE
- · CONVERSION RATE FROM TO BASE CURRENCY
- · CONVERSION RATE BASE TO FROM CURRENCY
- · CONVERSION RATE BASE TO TO CURRENCY

UNIT OF MEASURE
- # UNIT OF MEASURE SID
- · UNIT OF MEASURE CODE
- · UNIT OF MEASURE TEXT
- o ISO CODE
- o ISO MEASUREMENT NAME
- o DIMENSION KEY
- o DIMENSION TEXT
- o CREATED DATE
- o CHANGED DATE

PROCUREMENT STATUS
- # PROCUREMENT STATUS SID
- · PROCUREMENT STATUS 1 CODE
- · PROCUREMENT STATUS 2 CODE
- · PROCUREMENT STATUS 3 CODE
- · PROCUREMENT STATUS 4 CODE
- · PROCUREMENT STATUS 5 CODE
- · PROCUREMENT STATUS 6 CODE
- · PROCUREMENT STATUS 7 CODE
- o CREATED DATE
- o CHANGED DATE

PURCHASE ORDER ACTIVITY DETAIL
- · TRANSACTION QUANTITY
- · ON HOLD QUANTITY
- · OPEN QUANTITY
- · RECEIVED QUANTITY
- · RELIEVED QUANTITY
- · GROUP CURRENCY UNIT PRICE AMOUNT
- · GROUP CURRENCY EXTENDED PRICE AMOUNT
- · GROUP CURRENCY OTHER EXPENSES AMOUNT
- · GROUP CURRENCY TOTAL LANDED COST AMOUNT
- · GROUP CURRENCY DUTY AMOUNT
- · GROUP CURRENCY TAX AMOUNT
- · GROUP CURRENCY FREIGHT AMOUNT
- · GROUP TO LOCAL EXCHANGE RATE
- · TOUCH COUNT
- · CORRECTION COUNT
- · ADJUSTMENT COUNT
- · CREATED DATE
- · CHANGED DATE

ALL TIME

TIME
- # TIME SID
- · CALENDAR DATE
- · CALENDAR WEEKDAY
- · CALENDAR DAY
- · CALENDAR WEEK
- · CALENDAR MONTH
- · CALENDAR FISCAL PERIOD

FISCAL
- # FISCAL PERIOD SID
- · FISCAL VARIANT CODE
- · FISCAL YEAR VALUE
- · FISCAL QUARTER

PURCHASE ORDER ACTIVITY DOCUMENT
- # PURCHASE ORDER DOCUMENT SID
- · DOCUMENT NUMBER
- · DOCUMENT ITEM NUMBER
- · DOCUMENT TYPE CODE
- o DOCUMENT COMPANY CODE
- · DOCUMENT LINE TYPE CODE
- · REFERENCE DOCUMENT NUMBER
- · REFERENCE DOCUMENT ITEM NUMBER
- · REFERENCE DOCUMENT TYPE CODE
- · REFERENCE DOCUMENT COMPANY CODE
- o VENDOR INTERNAL REFERENCE NUMBER
- o ACCOUNT IDENTIFIER
- o DOCUMENT CURRENCY CODE
- o REASON CODE
- o COMPLETE SHIPMENT INDICATOR
- o DELETION INDICATOR
- o DELIVERY COMPLETED INDICATOR
- · ESTIMATED PRICE INDICATOR

VENDOR
- # VENDOR SID
- · VENDOR ACCOUNT NUMBER
- · COMPANY CODE
- o PURCHASING ORGANIZATION CODE
- o VENDOR NAME
- o VENDOR SHORT NAME
- o CITY NAME
- o DISTRICT NAME
- o POSTAL CODE
- o REGION CODE
- o REGION NAME
- o COUNTRY CODE
- · COUNTRY NAME
- o INDUSTRY CODE

ORGANIZATION
- o FISCAL VARIANT CODE
- o ORGANIZATION CATEGORY CODE
- o ORGANIZATION CATEGORY DESCRIPTION
- o ORGANIZATION HIERARCHY LEVEL N
- o LEVEL1 ORGANIZATION NAME
- o LEVEL2 ORGANIZATION NAME
- o LEVEL3 ORGANIZATION NAME
- o LEVEL4 ORGANIZATION NAME
- o ORGANIZATION TYPE CODE
- o ORGANIZATION TYPE NAME
- · COMPANY CODE
- · COMPANY NAME
- o DISTRIBUTION CHANNEL CODE
- o DISTRIBUTION CHANNEL NAME
- o DIVISION CODE
- o DIVISION NAME

EMPLOYEE
- · CHANGED DATE
- o CREATED DATE
- o EMPLOYEE CATEGORY CODE
- o EMPLOYEE CATEGORY DESCRIPTION
- o EMPLOYEE SUBTYPE CODE
- o EMPLOYEE SUBTYPE DESCRIPTION
- o EMPLOYEE TYPE CODE
- o EMPLOYEE TYPE DESCRIPTION
- o EMPLOYMENT START DATE
- o EMPLOYMENT END DATE
- o FIRST NAME
- o LOCK INDICATOR
- o MIDDLE NAME OR INITIAL
- · PERSONNEL NUMBER SID
- · PERSONNEL NUMBER
- · SURNAME
- o OBJECT IDENTIFICATION

Relationship labels: is procuring through · is being shipped to · is procured through · is shipped to · is defined for a · is categorized by · is categorized · ship to for · quantity defined by · categorizes · ship to for · purchasing buyer organization current state defined by · is being procured for · was created on · has defined details in · defines details for · is procured from · requisitioner is · purchasing group employee · is providing · fiscal role · financial currency · defines creation for · defined for quantity in · currently is · requisitioning purchasing buyer organization for · purchasing buyer employee is

FIGURE 15Q

PLANT
- # PLANT SID
- * PLANT IDENTIFIER
- o STORAGE LOCATION CODE
- o SPECIAL STOCK CODE
- o UNLOADING POINT NAME
- o PLANT NAME
- o SPECIAL STOCK DESCRIPTION
- o POSTAL CODE
- o CITY CODE
- o CITY NAME
- o COUNTRY CODE
- o COUNTRY NAME
- o COUNTY CODE

MATERIAL
- # MATERIAL SID
- * BASE UNIT OF MEASURE CODE
- * CHANGED DATE
- * COMPANY CODE
- * COMPANY NAME
- * CREATED DATE
- o DELETION DATE
- o DELETION FLAG
- o DIMENSION UNIT OF MEASURE CODE
- o DIVISION CODE
- o DIVISION NAME
- o GL CATEGORY CODE
- o GL CATEGORY DESCRIPTION
- o WEIGHT
- * WEIGHT UNIT OF MEASURE CODE
- o INDUSTRY SECTOR CODE

PROCUREMENT DOCUMENT CLASS
- # PROCUREMENT DOCUMENT CLASS
- * DOCUMENT TYPE CODE
- * DOCUMENT TYPE NAME
- * DOCUMENT LINE TYPE CODE
- * DOCUMENT LINE TYPE DESCRIPTION
- o REQUISITION MULTIPLIER
- o QUOTATION MULTIPLIER
- o PURCHASE ORDER MULTIPLIER
- o CONTRACT MULTIPLIER
- o USER MULTIPLIER 1
- o USER MULTIPLIER 2
- o USER MULTIPLIER 3

CUSTOMER
- # CUSTOMER SID
- o ACCOUNT ASSIGNMENT GROUP
- o ACCOUNT NUMBER
- o ADDRESS IDENTIFIER
- o BILLING BLOCK CODE
- o CITY NAME
- o COUNTRY CODE
- o COUNTY CODE
- o COUNTY NAME
- * CURRENCY CODE
- o CUSTOMER CLASSIFICATION CODE
- o CUSTOMER CLASSIFICATION NAME
- o CUSTOMER GROUP CODE
- o CUSTOMER GROUP NAME
- o CUSTOMER HIERARCHY LEVEL NUMBER
- o CUSTOMER MERCHANT NUMBER
- * CUSTOMER IDENTIFIER
- o CUSTOMER LONG NAME
- * CUSTOMER NAME

COST CENTER
- # COST CENTER SID
- * COST CENTER CODE
- * CHANGED DATE
- * CONTROLLING AREA KEY CODE
- * CONTROLLING AREA NAME
- o COST CENTER DEPARTMENT CODE
- o COST CENTER DEPARTMENT NAME
- o COST CENTER DESCRIPTION
- o COST CENTER LEAF LEVEL NUMBER
- o COST CENTER MANAGER NAME

FINANCIAL CURRENCY CONVERSION
- # FROM CURRENCY CODE
- # TO CURRENCY CODE
- * FISCAL PERIOD SID
- * FISCAL VARIANT CODE
- * FISCAL YEAR VALUE
- * POSTING PERIOD NUMBER
- * POSTING PERIOD END DATE
- * RATE PUBLISHED DATE
- * BASE CURRENCY CODE
- o CONVERSION RATE FROM TO BASE CURRENCY
- o CONVERSION RATE BASE TO FROM CURRENCY
- o CONVERSION RATE BASE TO TO CURRENCY

CONTRACT ACTIVITY DETAIL
- * TRANSACTION QUANTITY
- o ON HOLD QUANTITY
- o OPEN QUANTITY
- o RECEIVED QUANTITY
- o CUMULATIVE RECEIVED QUANTITY
- o RELIEVED QUANTITY
- o GROUP CURRENCY UNIT PRICE AMOUNT
- o GROUP CURRENCY TARGET COMMITMENT AMOUNT
- o GROUP TO LOCAL EXCHANGE RATE
- o TOUCH COUNT
- o CORRECTION COUNT
- o ADJUSTMENT COUNT
- o CREATED DATE
- o CHANGED DATE

UNIT OF MEASURE
- # UNIT OF MEASURE SID
- * UNIT OF MEASURE CODE
- * UNIT OF MEASURE TEXT
- o ISO CODE
- o ISO MEASUREMENT NAME
- o DIMENSION KEY
- o DIMENSION TEXT
- o CREATED DATE
- o CHANGED DATE

PROCUREMENT STATUS
- # PROCUREMENT STATUS SID
- * PROCUREMENT STATUS 1 CODE
- * PROCUREMENT STATUS 2 CODE
- * PROCUREMENT STATUS 3 CODE
- * PROCUREMENT STATUS 4 CODE
- * PROCUREMENT STATUS 5 CODE
- * PROCUREMENT STATUS 6 CODE
- * PROCUREMENT STATUS 7 CODE
- o CREATED DATE
- o CHANGED DATE

ALL TIME

TIME
- # TIME SID
- * CALENDAR DATE
- * CALENDAR WEEKDAY
- * CALENDAR DAY
- * CALENDAR WEEK
- * CALENDAR MONTH
- * CALENDAR FISCAL PERIOD

FISCAL
- # FISCAL PERIOD SID
- * FISCAL VARIANT CODE
- * FISCAL YEAR VALUE
- * FISCAL QUARTER

CONTRACT ACTIVITY DOCUMENT
- # CONTRACT DOCUMENT SID
- * DOCUMENT COMPANY CODE
- * DOCUMENT NUMBER
- * DOCUMENT ITEM NUMBER
- * DOCUMENT TYPE CODE
- * DOCUMENT LINE TYPE CODE
- * REFERENCE DOCUMENT NUMBER
- * REFERENCE DOCUMENT ITEM NUMBER
- * REFERENCE DOCUMENT TYPE CODE
- * REFERENCE DOCUMENT COMPANY CODE
- * DOCUMENT DATE
- o HEADER TEXT
- o ITEM TEXT
- o CONTRACT VALIDITY PERIOD START DATE
- o CONTRACT VALIDITY PERIOD END DATE
- o LINE ITEM EFFECTIVE START DATE
- o LINE ITEM EFFECTIVE END DATE
- o DELETION INDICATOR
- * FIXED EXCHANGE RATE INDICATOR

VENDOR
- # VENDOR SID
- * VENDOR ACCOUNT NUMBER
- * COMPANY CODE
- o PURCHASING ORGANIZATION CODE
- o VENDOR NAME
- o VENDOR SHORT NAME
- o CITY NAME
- o DISTRICT NAME
- o POSTAL CODE
- o REGION CODE
- o REGION NAME
- o COUNTRY CODE
- o COUNTRY NAME
- o INDUSTRY CODE

EMPLOYEE
- * CHANGED DATE
- o CREATED DATE
- o EMPLOYEE CATEGORY CODE
- o EMPLOYEE CATEGORY DESCRIPTION
- o EMPLOYEE SUBTYPE CODE
- o EMPLOYEE SUBTYPE DESCRIPTION
- o EMPLOYEE TYPE CODE
- o EMPLOYEE TYPE DESCRIPTION
- o EMPLOYMENT START DATE
- o EMPLOYMENT END DATE
- * FIRST NAME
- o LOCK INDICATOR
- o MIDDLE NAME OR INITIAL
- # PERSONNEL NUMBER SID
- * PERSONNEL NUMBER
- * SURNAME
- o OBJECT IDENTIFICATION

ORGANIZATION
- o FISCAL VARIANT CODE
- o ORGANIZATION CATEGORY CODE
- o ORGANIZATION CATEGORY DESCRIP...
- o ORGANIZATION HIERARCHY LEVEL N...
- o LEVEL1 ORGANIZATION NAME
- o LEVEL2 ORGANIZATION NAME
- o LEVEL3 ORGANIZATION NAME
- o LEVEL4 ORGANIZATION NAME
- o ORGANIZATION TYPE CODE
- o ORGANIZATION TYPE NAME
- * COMPANY CODE
- o COMPANY NAME
- o DISTRIBUTION CHANNEL CODE
- o DISTRIBUTION CHANNEL NAME
- o DIVISION CODE
- o DIVISION NAME

Relationship labels: is procuring through · is being shipped to · purchasing buyer organization is · purchasing buyer organization for · is shipped to · is of type · ship to is · quantity defined by · defined for · ship to for · is being procured for · fiscal role · financial currency · creation date defined for · created date · defines details for · has defined details in · is being administered by · established with a · responsible to administer is · responsible to administer · purchasing organization administers is · currently is · defined for quantity in

FIGURE 15R

FIGURE 155

PLANT
PLANT SID
* PLANT IDENTIFIER
o STORAGE LOCATION CODE
o SPECIAL STOCK CODE
o UNLOADING POINT NAME
* PLANT NAME
* SPECIAL STOCK DESCRIPTION
o POSTAL CODE
o CITY CODE
o CITY NAME
o COUNTRY CODE
o COUNTRY NAME
o COUNTY CODE

MATERIAL
MATERIAL SID
* BASE UNIT OF MEASURE CODE
* CHANGED DATE
o COMPANY CODE
* COMPANY NAME
* CREATED DATE
* DELETION DATE
o DELETION FLAG
o DIMENSION UNIT OF MEASURE CODE
o DIVISION CODE
o DIVISION NAME
* GL CATEGORY CODE
* GL CATEGORY DESCRIPTION
* HEIGHT
* HEIGHT UNIT OF MEASURE CODE
o INDUSTRY SECTOR CODE

PROCUREMENT DOCUMENT CLASS
PROCUREMENT DOCUMENT CLASS
* DOCUMENT TYPE CODE
* DOCUMENT TYPE NAME
* DOCUMENT LINE TYPE CODE
* DOCUMENT LINE TYPE DESCRIPTION
o REQUISITION MULTIPLIER
o QUOTATION MULTIPLIER
o PURCHASE ORDER MULTIPLIER
o CONTRACT MULTIPLIER
o USER MULTIPLIER 1
o USER MULTIPLIER 2
o USER MULTIPLIER 3

CUSTOMER
CUSTOMER SID
* ACCOUNT ASSIGNMENT GROUP
o ACCOUNT NUMBER
o ADDRESS IDENTIFIER
o BILLING BLOCK CODE
* CITY NAME
o COUNTRY CODE
o COUNTRY NAME
o COUNTY CODE
* CURRENCY CODE
o CUSTOMER CLASSIFICATION CODE
o CUSTOMER CLASSIFICATION NAME
o CUSTOMER GROUP CODE
o CUSTOMER GROUP NAME
* CUSTOMER HIERARCHY LEVEL NUMBER
* CUSTOMER MERCHANT NUMBER
* CUSTOMER IDENTIFIER
* CUSTOMER LONG NAME
* CUSTOMER NAME

COST CENTER
COST CENTER SID
* COST CENTER CODE
* CHANGED DATE
* CONTROLLING AREA KEY CODE
* CONTROLLING AREA NAME
* COST CENTER DEPARTMENT CODE
* COST CENTER DEPARTMENT NAME
* COST CENTER DESCRIPTION
* COST CENTER LEAF LEVEL NUMBER
* COST CENTER MANAGER NAME

FINANCIAL CURRENCY CONVERSION
FROM CURRENCY CODE
TO CURRENCY CODE
* FISCAL PERIOD SID
* FISCAL VARIANT CODE
* FISCAL YEAR VALUE
* POSTING PERIOD NUMBER
* POSTING PERIOD END DATE
* RATE PUBLISHED DATE
* BASE CURRENCY CODE
o CONVERSION RATE FROM TO BASE CURRENCY
o CONVERSION RATE BASE TO FROM CURRENCY
o CONVERSION RATE BASE TO TO CURRENCY

QUOTATION ACTIVITY DETAIL
* TRANSACTION QUANTITY
o ON HOLD QUANTITY
* OPEN QUANTITY
* RECEIVED QUANTITY
* RELIEVED QUANTITY
* GROUP CURRENCY UNIT PRICE AMOUNT
* GROUP CURRENCY EXTENDED PRICE AMOUNT
* GROUP CURRENCY OTHER EXPENSES AMOUNT
* GROUP CURRENCY TOTAL LANDED COST AMOUNT
* GROUP CURRENCY TAX AMOUNT
* GROUP CURRENCY DUTY AMOUNT
* GROUP CURRENCY FREIGHT AMOUNT
* GROUP TO LOCAL EXCHANGE RATE
* TOUCH COUNT
* CORRECTION COUNT
* ADJUSTMENT COUNT
* CREATED DATE
* CHANGED DATE

UNIT OF MEASURE
UNIT OF MEASURE SID
* UNIT OF MEASURE CODE
* UNIT OF MEASURE TEXT
o ISO CODE
o ISO MEASUREMENT CODE
o DIMENSION KEY
o DIMENSION TEXT
o CREATED DATE
o CHANGED DATE

PROCUREMENT STATUS
PROCUREMENT STATUS SID
* PROCUREMENT STATUS 1 CODE
* PROCUREMENT STATUS 2 CODE
* PROCUREMENT STATUS 3 CODE
* PROCUREMENT STATUS 4 CODE
* PROCUREMENT STATUS 5 CODE
* PROCUREMENT STATUS 6 CODE
* PROCUREMENT STATUS 7 CODE
* CREATED DATE
* CHANGED DATE

ALL TIME

TIME
TIME SID
* CALENDAR DATE
* CALENDAR WEEKDAY
* CALENDAR DAY
* CALENDAR WEEK
* CALENDAR MONTH
* CALENDAR FISCAL PERIOD

FISCAL
FISCAL PERIOD SID
* FISCAL VARIANT CODE
* FISCAL YEAR VALUE
* FISCAL QUARTER

QUOTATION ACTIVITY DOCUMENT
QUOTATION ACTIVITY DOCUMENT SID
* DOCUMENT ITEM NUMBER
* DOCUMENT NUMBER
* DOCUMENT COMPANY CODE
* DOCUMENT TYPE CODE
o DOCUMENT VENDOR NUMBER
o DOCUMENT LINE TYPE CODE
o REFERENCE DOCUMENT COMPANY CODE
o REFERENCE DOCUMENT NUMBER
o REFERENCE DOCUMENT ITEM NUMBER
o REFERENCE DOCUMENT TYPE CODE
o REASON CODE
o LOCAL CURRENCY CODE
* DOCUMENT CURRENCY CODE
* DELETION INDICATOR
o GROUP TO DOCUMENT EXCHANGE RATE
* DOCUMENT DATE
o OPEN STATUS DATE

VENDOR
VENDOR SID
* VENDOR ACCOUNT NUMBER
* COMPANY CODE
* PURCHASING ORGANIZATION CODE
o VENDOR NAME
o VENDOR SHORT NAME
o CITY NAME
o DISTRICT NAME
o POSTAL CODE
o REGION CODE
o REGION NAME
o COUNTRY CODE
o COUNTRY NAME
o INDUSTRY CODE

ORGANIZATION
o FISCAL VARIANT CODE
o ORGANIZATION CATEGORY CODE
o ORGANIZATION CATEGORY DESCRIP
o ORGANIZATION HIERARCHY LEVEL N
o LEVEL1 ORGANIZATION NAME
o LEVEL2 ORGANIZATION NAME
o LEVEL3 ORGANIZATION NAME
o LEVEL4 ORGANIZATION NAME
o ORGANIZATION TYPE CODE
o ORGANIZATION TYPE NAME
* COMPANY CODE
* COMPANY NAME
o DISTRIBUTION CHANNEL CODE
o DISTRIBUTION CHANNEL NAME
o DIVISION CODE
o DIVISION NAME

EMPLOYEE
* CHANGED DATE
o CREATED DATE
o EMPLOYEE CATEGORY CODE
o EMPLOYEE CATEGORY DESCRIPTION
o EMPLOYEE SUBTYPE CODE
o EMPLOYEE SUBTYPE DESCRIPTION
o EMPLOYEE TYPE CODE
o EMPLOYEE TYPE DESCRIPTION
o EMPLOYMENT START DATE
o EMPLOYMENT END DATE
o FIRST NAME
o LOCK INDICATOR
o MIDDLE NAME OR INITIAL
* PERSONNEL NUMBER SID
* PERSONNEL NUMBER
o SURNAME
o OBJECT IDENTIFICATION

Relationship labels: is requesting, request for, is requesting, is for a, is categorized by, ship to for, ship to is, is defined in, categorizes, quantity defined by, defined for quantity in, current state defined by, currently is, financial currency, fiscal rate, requested for, was created on, has defined details in, requested from, is administered by, is preparing a, buyer organization is, buyer organization for, is administering a, defines details for, defines creation for

F I G U R E 15T

PLANT
PLANT SID
o PLANT IDENTIFIER
o STORAGE LOCATION CODE
* SPECIAL STOCK CODE
o UNLOADING POINT NAME
o PLANT NAME
* SPECIAL STOCK DESCRIPTION
o POSTAL CODE
o CITY CODE
o CITY NAME
o COUNTRY CODE
o COUNTRY NAME
o COUNTY CODE

MATERIAL
MATERIAL SID
* BASE UNIT OF MEASURE CODE
* CHANGED DATE
o COMPANY CODE
o COMPANY NAME
o CREATED DATE
o DELETION DATE
o DELETION FLAG
o DIMENSION UNIT OF MEASURE COD
o DIVISION CODE
o DIVISION NAME
o GL CATEGORY CODE
o GL CATEGORY DESCRIPTION
o HEIGHT
o HEIGHT UNIT OF MEASURE CODE
o INDUSTRY SECTOR CODE

PROCUREMENT DOCUMENT CLASS
PROCUREMENT DOCUMENT CLASS
* DOCUMENT TYPE CODE
* DOCUMENT TYPE NAME
* DOCUMENT LINE TYPE CODE
* DOCUMENT LINE TYPE DESCRIPTION
o REQUISITION MULTIPLIER
o QUOTATION MULTIPLIER
o PURCHASE ORDER MULTIPLIER
o CONTRACT MULTIPLIER
o USER MULTIPLIER 1
o USER MULTIPLIER 2
o USER MULTIPLIER 3

CUSTOMER
CUSTOMER SID
o ACCOUNT ASSIGNMENT GROUP
o ACCOUNT NUMBER
o ADDRESS IDENTIFIER
o BILLING BLOCK CODE
* CITY NAME
* COUNTRY CODE
* COUNTRY NAME
o COUNTY CODE
o COUNTY NAME
* CURRENCY CODE
o CUSTOMER CLASSIFICATION CODE
o CUSTOMER CLASSIFICATION NAME
o CUSTOMER GROUP CODE
o CUSTOMER GROUP NAME
o CUSTOMER HIERARCHY LEVEL NUMBE
o CUSTOMER MERCHANT NUMBER
o CUSTOMER IDENTIFIER
o CUSTOMER LONG NAME
o CUSTOMER NAME

COST CENTER
COST CENTER SID
* COST CENTER CODE
* CHANGED DATE
* CONTROLLING AREA KEY CODE
* CONTROLLING AREA NAME
* COST CENTER DEPARTMENT CODE
* COST CENTER DEPARTMENT NAME
* COST CENTER DESCRIPTION
* COST CENTER LEAF LEVEL NUMBER
* COST CENTER MANAGER NAME

FINANCIAL CURRENCY CONVERSION
FROM CURRENCY CODE
TO CURRENCY CODE
FISCAL PERIOD SID
* FISCAL VARIANT CODE
* FISCAL YEAR VALUE
* POSTING PERIOD NUMBER
* POSTING PERIOD END DATE
* RATE PUBLISHED DATE
* BASE CURRENCY CODE
* CONVERSION RATE FROM TO BASE CURRENCY
* CONVERSION RATE BASE TO FROM CURRENCY
* CONVERSION RATE BASE TO TO CURRENCY

UNIT OF MEASURE
UNIT OF MEASURE SID
* UNIT OF MEASURE CODE
* UNIT OF MEASURE TEXT
o ISO CODE
o ISO MEASUREMENT NAME
o DIMENSION KEY
o DIMENSION TEXT
o CREATED DATE
o CHANGED DATE

PROCUREMENT STATUS
PROCUREMENT STATUS SID
* PROCUREMENT STATUS 1 CODE
* PROCUREMENT STATUS 2 CODE
* PROCUREMENT STATUS 3 CODE
* PROCUREMENT STATUS 4 CODE
* PROCUREMENT STATUS 5 CODE
* PROCUREMENT STATUS 6 CODE
* PROCUREMENT STATUS 7 CODE
* CREATED DATE
* CHANGED DATE

CONTRACT DOCUMENT SUMMARY
* TOTAL CONTRACT DOLLAR VALUE
* REMAINING DOLLAR VALUE
* CREATED DATE
* CHANGED DATE

ALL TIME

FISCAL
FISCAL PERIOD SID
* FISCAL VARIANT CODE
* FISCAL YEAR VALUE
* FISCAL QUARTER

TIME
TIME SID
* CALENDAR DATE
* CALENDAR WEEKDAY
* CALENDAR DAY
* CALENDAR WEEK
* CALENDAR MONTH
* CALENDAR FISCAL PERIOD

CONTRACT ACTIVITY DOCUMENT
CONTRACT DOCUMENT SID
o DOCUMENT COMPANY CODE
o DOCUMENT NUMBER
o DOCUMENT ITEM NUMBER
o DOCUMENT TYPE CODE
o DOCUMENT LINE TYPE CODE
o REFERENCE DOCUMENT NUMBER
o REFERENCE DOCUMENT ITEM NUMBER
o REFERENCE DOCUMENT TYPE CODE
o REFERENCE DOCUMENT COMPANY CODE
o DOCUMENT DATE
o HEADER TEXT
o ITEM TEXT
o CONTRACT VALIDITY PERIOD START DATE
o CONTRACT VALIDITY PERIOD END DATE
o LINE ITEM EFFECTIVE START DATE
o LINE ITEM EFFECTIVE END DATE
o DELETION INDICATOR
o FIXED EXCHANGE RATE INDICATOR

VENDOR
VENDOR SID
* VENDOR ACCOUNT NUMBER
* COMPANY CODE
* PURCHASING ORGANIZATION CODE
o VENDOR NAME
o VENDOR SHORT NAME
o CITY NAME
o DISTRICT NAME
o POSTAL CODE
o REGION CODE
o REGION NAME
o COUNTRY CODE
o COUNTRY NAME
o INDUSTRY CODE

ORGANIZATION
o FISCAL VARIANT CODE
o ORGANIZATION CATEGORY CODE
o ORGANIZATION CATEGORY DESCRIP
o ORGANIZATION HIERARCHY LEVEL N
o LEVEL1 ORGANIZATION NAME
o LEVEL2 ORGANIZATION NAME
o LEVEL3 ORGANIZATION NAME
o LEVEL4 ORGANIZATION NAME
o ORGANIZATION TYPE CODE
o ORGANIZATION TYPE NAME
* COMPANY CODE
* COMPANY NAME
o DISTRIBUTION CHANNEL CODE
o DISTRIBUTION CHANNEL NAME
o DIVISION CODE
o DIVISION NAME

EMPLOYEE
* CHANGED DATE
o CREATED DATE
o EMPLOYEE CATEGORY CODE
o EMPLOYEE CATEGORY DESCRIPTION
o EMPLOYEE SUBTYPE CODE
o EMPLOYEE SUBTYPE DESCRIPTION
o EMPLOYEE TYPE CODE
o EMPLOYEE TYPE DESCRIPTION
o EMPLOYMENT START DATE
o EMPLOYMENT END DATE
o FIRST NAME
o LOCK INDICATOR
o MIDDLE NAME OR INITIAL
o PERSONNEL NUMBER SID
o PERSONNEL NUMBER
o SURNAME
o OBJECT IDENTIFICATION

Relationship labels: Is of type · defined for · current state defined by · currently is · created as at · fiscal role · financial currency · creation date defined for · defines details for · has defined details in · established with a · is being administered by · purchasing buyer organization administered t · responsible to administer · responsible to administer is

FIGURE 15U

Gowling Lafleur Henderson LLP

PLANT
- # PLANT SID
- · PLANT IDENTIFIER
- · STORAGE LOCATION CODE
- · SPECIAL STOCK CODE
- o UNLOADING POINT NAME
- o PLANT NAME
- o SPECIAL STOCK DESCRIPTION
- o POSTAL CODE
- o CITY CODE
- o CITY NAME
- o COUNTRY CODE
- o COUNTRY NAME
- o COUNTY CODE

MATERIAL
- # MATERIAL SID
- · BASE UNIT OF MEASURE CODE
- · CHANGED DATE
- · COMPANY CODE
- · COMPANY NAME
- · CREATED DATE
- · DELETION DATE
- · DELETION FLAG
- · DIMENSION UNIT OF MEASURE COD
- · DIVISION CODE
- · DIVISION NAME
- · GL CATEGORY CODE
- · GL CATEGORY DESCRIPTION
- · HEIGHT
- · HEIGHT UNIT OF MEASURE CODE
- · INDUSTRY SECTOR CODE

PROCUREMENT DOCUMENT CLASS
- # PROCUREMENT DOCUMENT CLASS
- · DOCUMENT TYPE CODE
- · DOCUMENT TYPE NAME
- · DOCUMENT LINE TYPE CODE
- · DOCUMENT LINE TYPE DESCRIPTION
- o REQUISITION MULTIPLIER
- o QUOTATION MULTIPLIER
- o PURCHASE ORDER MULTIPLIER
- o CONTRACT MULTIPLIER
- o USER MULTIPLIER 1
- o USER MULTIPLIER 2
- o USER MULTIPLIER 3

CUSTOMER
- # CUSTOMER SID
- o ACCOUNT ASSIGNMENT GROUP
- o ACCOUNT NUMBER
- o ADDRESS IDENTIFIER
- o BILLING BLOCK CODE
- · CITY NAME
- · COUNTRY CODE
- · COUNTRY NAME
- · COUNTY CODE
- · COUNTY NAME
- · CURRENCY CODE
- · CUSTOMER CLASSIFICATION CODE
- · CUSTOMER CLASSIFICATION NAME
- · CUSTOMER GROUP CODE
- · CUSTOMER GROUP NAME
- · CUSTOMER HIERARCHY LEVEL NUMBE
- · CUSTOMER MERCHANT NUMBER
- · CUSTOMER IDENTIFIER
- · CUSTOMER LONG NAME
- · CUSTOMER NAME

COST CENTER
- # COST CENTER SID
- · COST CENTER CODE
- · CHANGED DATE
- · CONTROLLING AREA KEY CODE
- · CONTROLLING AREA NAME
- · COST CENTER DEPARTMENT CODE
- · COST CENTER DEPARTMENT NAME
- · COST CENTER DESCRIPTION
- · COST CENTER LEAF LEVEL NUMBER
- · COST CENTER MANAGER NAME

FINANCIAL CURRENCY CONVERSION
- # FROM CURRENCY CODE
- # TO CURRENCY CODE
- # FISCAL PERIOD SID
- · FISCAL VARIANT CODE
- · FISCAL YEAR VALUE
- · POSTING PERIOD NUMBER
- · POSTING PERIOD END DATE
- · RATE PUBLISHED DATE
- · BASE CURRENCY CODE
- · CONVERSION RATE FROM TO BASE CURRENCY
- · CONVERSION RATE BASE TO FROM CURRENCY
- · CONVERSION RATE BASE TO TO CURRENCY

PROCUREMENT ACTIVITY PERIODIC SUMMARY
- · OPEN ENTERED DOCUMENT COUNT
- · OPEN BLOCKED DOCUMENT COUNT
- · OPEN APPROVED DOCUMENT COUNT
- · COMPLETED CLOSED DOCUMENT COUNT
- · COMPLETED CANCELLED DOCUMENT COUNT
- · TOTAL DOCUMENT OPEN DAYS COUNT
- · REMAINING DOCUMENT DOLLAR AMOUNT
- · TOTAL DOCUMENT VALUE
- · CHANGED DATE
- · CREATED DATE

UNIT OF MEASURE
- # UNIT OF MEASURE SID
- · UNIT OF MEASURE CODE
- · UNIT OF MEASURE TEXT
- o ISO CODE
- o ISO MEASUREMENT NAME
- o DIMENSION KEY
- o DIMENSION TEXT
- o CREATED DATE
- o CHANGED DATE

PROCUREMENT STATUS
- # PROCUREMENT STATUS SID
- · PROCUREMENT STATUS 1 CODE
- · PROCUREMENT STATUS 2 CODE
- · PROCUREMENT STATUS 3 CODE
- · PROCUREMENT STATUS 4 CODE
- · PROCUREMENT STATUS 5 CODE
- · PROCUREMENT STATUS 6 CODE
- · PROCUREMENT STATUS 7 CODE
- · CREATED DATE
- · CHANGED DATE

ALL TIME

TIME
- # TIME SID
- · CALENDAR DATE
- · CALENDAR WEEKDAY
- · CALENDAR DAY
- · CALENDAR WEEK
- · CALENDAR MONTH
- · CALENDAR FISCAL PERIOD

FISCAL
- # FISCAL PERIOD SID
- · FISCAL VARIANT CODE
- · FISCAL YEAR VALUE
- · FISCAL QUARTER

PURCHASE ORDER ACTIVITY DOCUMENT
- # PURCHASE ORDER DOCUMENT SID
- · DOCUMENT NUMBER
- · DOCUMENT ITEM NUMBER
- · DOCUMENT TYPE CODE
- · DOCUMENT COMPANY CODE
- · DOCUMENT LINE TYPE CODE
- · REFERENCE DOCUMENT NUMBER
- · REFERENCE DOCUMENT ITEM NUMBER
- · REFERENCE DOCUMENT TYPE CODE
- · REFERENCE DOCUMENT COMPANY CODE
- o VENDOR INTERNAL REFERENCE NUMBER
- · ACCOUNT IDENTIFIER
- · DOCUMENT CURRENCY CODE
- · REASON CODE
- · COMPLETE SHIPMENT INDICATOR
- · DELETION INDICATOR
- · DELIVERY COMPLETED INDICATOR
- · ESTIMATED PRICE INDICATOR

VENDOR
- # VENDOR SID
- · VENDOR ACCOUNT NUMBER
- · COMPANY CODE
- · PURCHASING ORGANIZATION CODE
- o VENDOR NAME
- o VENDOR SHORT NAME
- o CITY NAME
- o DISTRICT NAME
- o POSTAL CODE
- o REGION CODE
- o REGION NAME
- o COUNTRY CODE
- o COUNTRY NAME
- o INDUSTRY CODE

ORGANIZATION
- o FISCAL VARIANT CODE
- o ORGANIZATION CATEGORY CODE
- o ORGANIZATION CATEGORY DESCRIP
- o ORGANIZATION HIERARCHY LEVEL N
- o LEVEL1 ORGANIZATION NAME
- o LEVEL2 ORGANIZATION NAME
- o LEVEL3 ORGANIZATION NAME
- o LEVEL4 ORGANIZATION NAME
- o ORGANIZATION TYPE CODE
- o ORGANIZATION TYPE NAME
- · COMPANY CODE
- · COMPANY NAME
- o DISTRIBUTION CHANNEL CODE
- o DISTRIBUTION CHANNEL NAME
- o DIVISION CODE
- o DIVISION NAME

EMPLOYEE
- o CHANGED DATE
- o CREATED DATE
- o EMPLOYEE CATEGORY CODE
- o EMPLOYEE CATEGORY DESCRIPTION
- o EMPLOYEE SUBTYPE CODE
- o EMPLOYEE SUBTYPE DESCRIPTION
- o EMPLOYEE TYPE CODE
- o EMPLOYEE TYPE DESCRIPTION
- o EMPLOYMENT START DATE
- o EMPLOYMENT END DATE
- o FIRST NAME
- o LOCK INDICATOR
- o MIDDLE NAME OR INITIAL
- # PERSONNEL NUMBER SID
- · PERSONNEL NUMBER
- · SURNAME
- o OBJECT IDENTIFICATION

Relationship labels: is paying · is part of · pertains to · is payed by · financial currency · fiscal rate · defines period for · is payed from · is summarized for · is procured from · is responsible for · is procuring · pertains to

FIGURE 15 V

ORGANIZATION
- COMPANY CODE
- COMPANY NAME
- ORGANIZATION IDENTIFIER
- ORGANIZATION NAME
- ORGANIZATION SID
- STORE CATEGORY NUMBER
- STORE CATEGORY NAME
- GROUP CURRENCY CODE
- LOCAL CURRENCY CODE
- CREATED DATE
- CHANGED DATE

SALES DOCUMENT CLASS
- # DOCUMENT CLASS SID
- DOCUMENT CLASS TYPE CODE
- DOCUMENT TYPE CODE
- DOCUMENT TYPE NAME
- DOCUMENT CATEGORY CODE
- DOCUMENT CATEGORY NAME
- DOCUMENT LINE TYPE CODE
- DOCUMENT LINE TYPE NAME
- INCLUDE IN FACT
- DEBIT CREDIT MULTIPLIER
- DOCUMENT STATUS CODE
- DOCUMENT STATUS NAME
- PAYMENT METHOD CODE

CUSTOMER
- # CUSTOMER SID
- CITY NAME
- COUNTRY CODE
- COUNTRY NAME
- CURRENCY CODE
- CUSTOMER HIERARCHY LEVEL NUMBER
- CUSTOMER MERCHANT NUMBER
- CUSTOMER IDENTIFIER
- CUSTOMER NAME
- CUSTOMER NUMBER
- FAX NUMBER
- LEVEL1 CUSTOMER NAME
- LEVEL2 CUSTOMER NAME
- LEVEL3 CUSTOMER NAME
- LEVEL4 CUSTOMER NAME
- POSTAL CODE
- STREET ADDRESS TEXT
- TELEPHONE NUMBER
- COLLECTION MANAGER NAME
- CREDIT MANAGER NAME
- PAYMENT TERM CODE

SHIPPING POINT
- # SHIPPING POINT SID
- SHIPPING POINT CODE
- SHIPPING POINT NAME

CUSTOMER DEMOGRAPHIC
- # CUSTOMER DEMOGRAPHIC SID
- GENDER DESCRIPTION
- AGE GROUP CODE
- AGE GROUP DESCRIPTION
- MARITAL STATUS CODE
- MARITAL STATUS DESCRIPTION
- HOUSEHOLD CHILD COUNT CODE
- HOUSEHOLD SIZE CODE
- ...

VENDOR
- # VENDOR SID
- VENDOR ACCOUNT NUMBER
- COMPANY CODE
- PURCHASING ORGANIZATION CODE
- CREATED DATE

SALES ORDER
- # CHANGED DATE
- CREATED DATE
- DOCUMENT CURRENCY CODE
- GROUP TO DOCUMENT CURRENCY CONVERSION RT
- DOCUMENT CURRENCY DISCOUNT AMOUNT
- DOCUMENT CURRENCY EXTENDED COST AMOUNT
- DOCUMENT CURRENCY EXTENDED PRICE AMOUNT
- DOCUMENT CURRENCY PROFIT MARGIN AMOUNT
- DOCUMENT CURRENCY FREIGHT AMOUNT
- DOCUMENT CURRENCY TAX AMOUNT
- DOCUMENT ITEM NUMBER
- DOCUMENT NUMBER
- DOCUMENT TYPE CODE
- GROUP CURRENCY CODE
- GROUP CURRENCY DISCOUNT AMOUNT
- GROUP CURRENCY EXTENDED COST AMOUNT
- GROUP CURRENCY EXTENDED PRICE AMOUNT
- GROUP CURRENCY FREIGHT AMOUNT
- GROUP CURRENCY PROFIT MARGIN AMOUNT
- GROUP CURRENCY TAX AMOUNT
- LOCAL CURRENCY CODE
- GROUP TO LOCAL CURRENCY CONVERSION RATE
- LOCAL TO DOCUMENT CURRENCY CONVERSION RT
- LOCAL CURRENCY DISCOUNT AMOUNT
- LOCAL CURRENCY EXTENDED COST AMOUNT
- LOCAL CURRENCY EXTENDED PRICE AMOUNT
- LOCAL CURRENCY FREIGHT AMOUNT
- LOCAL CURRENCY PROFIT MARGIN AMOUNT
- ...

EMPLOYEE
- # CHANGED DATE
- # PERSONNEL NUMBER SID
- PERSONNEL NUMBER
- SURNAME

FISCAL
- # FISCAL PERIOD SID
- FISCAL VARIANT CODE
- FISCAL YEAR VALUE
- FISCAL QUARTER
- POSTING PERIOD NUMBER
- FISCAL DATE
- POSTING PERIOD COUNT
- POSTING PERIOD END DATE

ALL TIME

TIME
- # TIME SID
- CALENDAR DATE
- CALENDAR WEEKDAY
- CALENDAR DAY
- CALENDAR WEEK
- CALENDAR MONTH
- CALENDAR FISCAL PERIOD NUM

UNIT OF MEASURE
- # UNIT OF MEASURE SID
- UNIT OF MEASURE CODE
- UNIT OF MEASURE TEXT

SALES STATUS
- # SALES STATUS SID
- SALES STATUS CODE
- PAYMENT METHOD CODE
- SHIP STATUS CODE
- DERIVED STATUS

MATERIAL
- # MATERIAL SID
- BASE UNIT OF MEASURE CODE
- CHANGED DATE
- COMPANY CODE
- COMPANY NAME
- CREATED DATE
- DELETION DATE
- DELETION FLAG
- DIMENSION UNIT OF MEASURE CODE
- DIVISION CODE
- DIVISION NAME
- GL CATEGORY CODE
- GL CATEGORY DESCRIPTION
- HEIGHT
- HEIGHT UNIT OF MEASURE CODE
- INDUSTRY SECTOR CODE
- INDUSTRY SECTOR DESCRIPTION
- INDUSTRY STANDARD DESCRIPTION
- INVENTORY COST LEVEL CODE
- LENGTH
- LENGTH UNIT OF MEASURE CODE
- LEVEL1 MATERIAL NAME
- LEVEL2 MATERIAL NAME
- LEVEL3 MATERIAL NAME
- LEVEL4 MATERIAL NAME
- LEVEL5 MATERIAL NAME
- MATERIAL CATEGORY CODE
- MATERIAL CATEGORY DESCRIPTION
- MATERIAL DESCRIPTION
- MATERIAL GROUP CODE
- MATERIAL GROUP DESCRIPTION
- MATERIAL HIERARCHY LEVEL NUMBER
- MATERIAL IDENTIFIER
- MATERIAL LONG CODE
- MATERIAL LONG DESCRIPTION
- MATERIAL TYPE CODE
- MATERIAL TYPE DESCRIPTION
- MERCHANT NUMBER
- NET WEIGHT
- ORDER UNIT OF MEASURE CODE
- PRICE BAND CATEGORY CODE
- PRICE BAND CATEGORY DESCRIPTION
- PRICE REFERENCE MATERIAL ID
- SALE UNIT OF MEASURE AMOUNT
- SALE UNIT OF MEASURE CODE

FIGURE 15 W

ORGANIZATION
- COMPANY CODE
- COMPANY NAME
- ORGANIZATION IDENTIFIER
- ORGANIZATION NAME
- # ORGANIZATION SID
- STORE CATEGORY NUMBER
- STORE CATEGORY NAME
- GROUP CURRENCY CODE
- LOCAL CURRENCY CODE
- CREATED DATE
- CHANGED DATE

SALES DOCUMENT CLASS
- # DOCUMENT CLASS SID
- DOCUMENT CLASS TYPE CODE
- DOCUMENT TYPE CODE
- DOCUMENT TYPE NAME
- DOCUMENT CATEGORY CODE
- DOCUMENT CATEGORY NAME
- DOCUMENT LINE TYPE CODE
- DOCUMENT LINE TYPE NAME
- INCLUDE IN FACT
- DEBIT CREDIT MULTIPLIER
- DOCUMENT STATUS CODE
- DOCUMENT STATUS NAME
- PAYMENT METHOD CODE

CUSTOMER
- # CUSTOMER SID
- CITY NAME
- COUNTRY CODE
- COUNTRY NAME
- CURRENCY CODE
- CUSTOMER HIERARCHY LEVEL NUMBER
- CUSTOMER MERCHANT NUMBER
- CUSTOMER IDENTIFIER
- CUSTOMER NAME
- CUSTOMER NUMBER
- FAX NUMBER
- LEVEL1 CUSTOMER NAME
- LEVEL2 CUSTOMER NAME
- LEVEL3 CUSTOMER NAME
- LEVEL4 CUSTOMER NAME
- POSTAL CODE
- STREET ADDRESS TEXT
- TELEPHONE NUMBER
- COLLECTION MANAGER NAME
- CREDIT MANAGER NAME
- PAYMENT TERM CODE

SHIPPING POINT
- # SHIPPING POINT SID
- SHIPPING POINT CODE
- SHIPPING POINT NAME

VENDOR
- # VENDOR SID
- VENDOR ACCOUNT NUMBER
- COMPANY CODE
- PURCHASING ORGANIZATION CODE
- CREATED DATE

SALES DISTRIBUTION
- ACTUAL DELIVERED BASE UNIT QUANTITY
- ACTUAL DELIVERED SALE UNIT QUANTITY
- COMPANY CODE
- ACTUAL GOODS ISSUE DATE SID
- CHANGED DATE
- COMPLETE DELIVERY INDICATOR
- CREATED DATE
- DELIVERED DATE SID
- DISTRIBUTION CHANNEL CODE
- DOCUMENT CURRENCY CODE
- GROUP TO DOCUMENT CURRENCY CONVERSION RT
- DOCUMENT CURRENCY EXTENDED COST AMOUNT
- DOCUMENT CURRENCY EXTENDED NET PRICE AMT
- DOCUMENT CURRENCY EXTENDED NET VALUE AMT
- DOCUMENT ITEM NUMBER
- DOCUMENT NUMBER
- DOCUMENT TYPE CODE
- GROUP CURRENCY CODE
- GROUP CURRENCY EXTENDED NET PRICE AMOUNT
- GROUP CURRENCY EXTENDED NET VALUE AMOUNT
- LOADED DATE SID
- LOCAL CURRENCY CODE
- GROUP TO LOCAL CURRENCY CONVERSION RATE
- LOCAL CURRENCY EXTENDED NET PRICE AMOUNT
- LOCAL CURRENCY EXTENDED NET VALUE AMOUNT
- NEXT PLANNED SHIPPING DATE SID
- ORDER COMBINATION INDICATOR
- PLANNED GOODS ISSUE DATE SID
- PRIORITY DELIVERY CODE
- REQUESTED DELIVERY DATE SID
- SCHEDULED TRANSPORTATION DATE SID

CUSTOMER DEMOGRAPHIC
- # CUSTOMER DEMOGRAPHIC SID
- GENDER DESCRIPTION
- AGE GROUP CODE
- AGE GROUP DESCRIPTION
- MARITAL STATUS CODE
- MARITAL STATUS DESCRIPTION
- HOUSEHOLD CHILD COUNT CODE
- HOUSEHOLD SIZE CODE

EMPLOYEE
- CHANGED DATE
- # PERSONNEL NUMBER SID
- PERSONNEL NUMBER
- SURNAME

SALES STATUS
- # SALES STATUS SID
- SALES STATUS CODE
- PAYMENT METHOD CODE
- SHIP STATUS CODE
- DERIVED STATUS

ALL TIME

TIME
- # TIME SID
- CALENDAR DATE
- CALENDAR WEEKDAY
- CALENDAR DAY
- CALENDAR WEEK
- CALENDAR MONTH
- CALENDAR FISCAL PERIOD NUM

FISCAL
- # FISCAL PERIOD SID
- FISCAL VARIANT CODE
- FISCAL YEAR VALUE
- FISCAL QUARTER
- POSTING PERIOD NUMBER
- FISCAL DATE
- POSTING PERIOD COUNT
- POSTING PERIOD END DATE

UNIT OF MEASURE
- # UNIT OF MEASURE SID
- UNIT OF MEASURE CODE
- UNIT OF MEASURE TEXT

MATERIAL
- # MATERIAL SID
- BASE UNIT OF MEASURE CODE
- CHANGED DATE
- COMPANY CODE
- COMPANY NAME
- CREATED DATE
- DELETION DATE
- DELETION FLAG
- DIMENSION UNIT OF MEASURE CODE
- DIVISION CODE
- DIVISION NAME
- GL CATEGORY CODE
- GL CATEGORY DESCRIPTION
- HEIGHT
- HEIGHT UNIT OF MEASURE CODE
- INDUSTRY SECTOR CODE
- INDUSTRY SECTOR DESCRIPTION
- INDUSTRY STANDARD DESCRIPTION
- INVENTORY COST LEVEL CODE
- LENGTH
- LENGTH UNIT OF MEASURE CODE
- LEVEL1 MATERIAL NAME
- LEVEL2 MATERIAL NAME
- LEVEL3 MATERIAL NAME
- LEVEL4 MATERIAL NAME
- LEVEL5 MATERIAL NAME
- MATERIAL CATEGORY CODE
- MATERIAL CATEGORY DESCRIPTION
- MATERIAL DESCRIPTION
- MATERIAL GROUP CODE
- MATERIAL GROUP DESCRIPTION
- MATERIAL HIERARCHY LEVEL NUMBER
- MATERIAL IDENTIFIER
- MATERIAL LONG CODE
- MATERIAL LONG DESCRIPTION
- MATERIAL TYPE CODE
- MATERIAL TYPE DESCRIPTION
- MERCHANT NUMBER
- NET WEIGHT
- ORDER UNIT OF MEASURE CODE
- PRICE BAND CATEGORY CODE
- PRICE BAND CATEGORY DESCRIPTION
- PRICE REFERENCE MATERIAL ID
- SALE UNIT OF MEASURE AMOUNT
- SALE UNIT OF MEASURE CODE

FIGURE 15X

FIGURE 154

ORGANIZATION
COMPANY CODE
• COMPANY NAME
• ORGANIZATION IDENTIFIER
• ORGANIZATION NAME
ORGANIZATION SID
• STORE CATEGORY NUMBER
• STORE CATEGORY NAME
• GROUP CURRENCY CODE
• LOCAL CURRENCY CODE
• CREATED DATE
• CHANGED DATE

SALES DOCUMENT CLASS
DOCUMENT CLASS SID
• DOCUMENT CLASS TYPE CODE
• DOCUMENT TYPE CODE
• DOCUMENT TYPE NAME
• DOCUMENT CATEGORY CODE
• DOCUMENT CATEGORY NAME
• DOCUMENT LINE TYPE CODE
• DOCUMENT LINE TYPE NAME
• INCLUDE IN FACT
• DEBIT CREDIT MULTIPLIER
• DOCUMENT STATUS CODE
• DOCUMENT STATUS NAME
• PAYMENT METHOD CODE

CUSTOMER
CUSTOMER SID
• CITY NAME
• COUNTRY CODE
• COUNTRY NAME
• CURRENCY CODE
• CUSTOMER HIERARCHY LEVEL NUMBER
• CUSTOMER MERCHANT NUMBER
• CUSTOMER IDENTIFIER
• CUSTOMER NAME
• CUSTOMER NUMBER
• FAX NUMBER
• LEVEL1 CUSTOMER NAME
• LEVEL2 CUSTOMER NAME
• LEVEL3 CUSTOMER NAME
• LEVEL4 CUSTOMER NAME
• POSTAL CODE
• STREET ADDRESS TEXT
• TELEPHONE NUMBER
• COLLECTION MANAGER NAME
• CREDIT MANAGER NAME
• PAYMENT TERM CODE

SHIPPING POINT
SHIPPING POINT SID
• SHIPPING POINT CODE
• SHIPPING POINT NAME

ALL TIME

TIME
TIME SID
• CALENDAR DATE
• CALENDAR WEEKDAY
• CALENDAR DAY
• CALENDAR WEEK
• CALENDAR MONTH
• CALENDAR FISCAL PERIOD NUM...

VENDOR
VENDOR SID
• VENDOR ACCOUNT NUMBER
• COMPANY CODE
• PURCHASING ORGANIZATION CODE
• CREATED DATE

FISCAL
FISCAL PERIOD SID
• FISCAL VARIANT CODE
• FISCAL YEAR VALUE
• FISCAL QUARTER
• FISCAL DATE
• POSTING PERIOD NUMBER
• POSTING PERIOD COUNT
• POSTING PERIOD END DATE

BILLING
• ADJUSTMENT IDENTIFIER
• CHANGED DATE
• CREATED DATE
• CUSTOMER TRANSACTION LINE NUMBER
• CUSTOMER TRANSACTION NUMBER
• DOCUMENT CURRENCY CODE
• GROUP TO DOCUMENT CURRENCY EXCHANGE RATE
• DOCUMENT CURRENCY EXTENDED COST AMOUNT
• DOCUMENT CURRENCY EXTENDED PRICE AMOUNT
• DOCUMENT CURRENCY CASH DISCOUNT AMOUNT
• DOCUMENT CURRENCY FREIGHT AMOUNT
• DOCUMENT CURRENCY TAX AMOUNT
DOCUMENT ITEM NUMBER
DOCUMENT NUMBER
• DOCUMENT TYPE CODE
• GROUP CURRENCY CODE
• GROUP CURRENCY DISCOUNT AMOUNT
• GROUP CURRENCY EXTENDED PRICE AMOUNT
• GROUP CURRENCY CASH DISCOUNT AMOUNT
• GROUP CURRENCY FREIGHT AMOUNT
• GROUP CURRENCY PROFIT MARGIN AMOUNT
• GROUP CURRENCY TAX AMOUNT
• LOCAL CURRENCY CODE
• GROUP TO LOCAL CURRENCY EXCHANGE RATE
• LOCAL CURRENCY EXTENDED PRICE AMOUNT
• LOCAL CURRENCY CASH DISCOUNT AMOUNT
• LOCAL CURRENCY FREIGHT AMOUNT
• LOCAL CURRENCY TAX AMOUNT

CUSTOMER DEMOGRAPHIC
CUSTOMER DEMOGRAPHIC SID
• GENDER DESCRIPTION
• AGE GROUP CODE
• AGE GROUP DESCRIPTION
• MARITAL STATUS CODE
• MARITAL STATUS DESCRIPTION
• HOUSEHOLD CHILD COUNT CODE
• HOUSEHOLD SIZE CODE

EMPLOYEE
• CHANGED DATE
PERSONNEL NUMBER SID
• PERSONNEL NUMBER
• SURNAME

SALES STATUS
SALES STATUS SID
• SALES STATUS CODE
• PAYMENT METHOD CODE
• SHIP STATUS CODE
• DERIVED STATUS

UNIT OF MEASURE
UNIT OF MEASURE SID
• UNIT OF MEASURE CODE
• UNIT OF MEASURE TEXT

MATERIAL
MATERIAL SID
• BASE UNIT OF MEASURE CODE
• CHANGED DATE
• COMPANY CODE
• COMPANY NAME
• CREATED DATE
• DELETION DATE
• DELETION FLAG
• DIMENSION UNIT OF MEASURE CODE
• DIVISION CODE
• DIVISION NAME
• GL CATEGORY CODE
• GL CATEGORY DESCRIPTION
• HEIGHT
• HEIGHT UNIT OF MEASURE CODE
• INDUSTRY SECTOR CODE
• INDUSTRY SECTOR DESCRIPTION
• INDUSTRY STANDARD DESCRIPTION
• INVENTORY COST LEVEL CODE
• LENGTH
• LENGTH UNIT OF MEASURE CODE
• LEVEL1 MATERIAL NAME
• LEVEL2 MATERIAL NAME
• LEVEL3 MATERIAL NAME
• LEVEL4 MATERIAL NAME
• LEVEL5 MATERIAL NAME
• MATERIAL CATEGORY CODE
• MATERIAL CATEGORY DESCRIPTION
• MATERIAL DESCRIPTION
• MATERIAL GROUP CODE
• MATERIAL GROUP DESCRIPTION
• MATERIAL HIERARCHY LEVEL NUMBER
• MATERIAL IDENTIFIER
• MATERIAL LONG CODE
• MATERIAL LONG DESCRIPTION
• MATERIAL TYPE CODE
• MATERIAL TYPE DESCRIPTION
• MERCHANT NUMBER
• NET WEIGHT
• ORDER UNIT OF MEASURE CODE
• PRICE BAND CATEGORY CODE
• PRICE BAND CATEGORY DESCRIPTION
• PRICE REFERENCE MATERIAL ID
• SALE UNIT OF MEASURE AMOUNT
• SALE UNIT OF MEASURE CODE

Figure 16

BPM Foundation

Business Functional Areas

Star Schema

Areas of Analysis

Key Performance
Indicators / Measures /
Dimensions /
Attributes

Figure 17

COGNOS e-APPLICATIONS BUSINESS PERF

Figure 18a

Figure 18b

COGNOS e-APPLICATIONS BUSINESS PERFORMANCE MANAGEMENT (BPM) FOUNDATION

Figure 19

Gowling Lafleur Henderson LLP

COGNOS e-APPLICATIONS SUPPLY-SIDE PERFORMANCE MANAGEMENT

ORGANIZATIONAL DIMENSIONS FOR FINANCIAL ANALYSIS

| COMPANY CONSOLIDATION | COST CENTER | BUSINESS AREA | CHART OF ACCOUNTS |

FUNCTIONAL DOCUMENT DIMENSIONS

| ACCOUNTING DOCUMENT CLASS | MATERIAL MOVEMENT DOC CLASS | QUOTATION ACTIVITY DOCUMENT | PO ACTIVITY DOCUMENT | REQUISITION ACTIVITY DOCUMENT | CONTRACT ACTIVITY DOCUMENT | PROCUREMENT DOCUMENT CLASS |

MASTER DIMENSIONS

| VENDOR | MATERIAL | CUSTOMER | EMPLOYEE |

ACCOUNTS PAYABLE ANALYSIS

- AP Vendor Profile
- AP Functional Performance
- AP Cash Outflow Forecast
- AP Organizational Effectiveness

INVENTORY ANALYSIS

- Stock Overview and Valuation Analysis
- Material Movement Activity Analysis
- Demand Analysis
- Material Reservation Analysis
- Physical Inventory Analysis
- Inventory Forecast

- Procurement Vendor Profile
- Material Related Expenditure Profile
- Material Analysis
- Procurement Process Effectiveness
- Procurement Organizational Effectiveness
- e-Procurement Analysis

OPERATIONAL ENTITY DIMENSIONS

| ORGANIZATION | PLANT | MATERIAL STORAGE | STORAGE BIN | SHIPPING POINT |

UNIVERSAL DIMENSIONS

| ALL TIME (TIME, FISCAL) | UNIT OF MEASURE | FINANCIAL CURRENCY CONVERSION | UNIT OF MEASURE CONVERSION | USER CATEGORY |

FUNCTIONAL SPECIFIC DIMENSIONS

| PROCUREMENT STATUS | RELEASE STRATEGY | VALUATION | BATCH | STOCK CLASS |

Figure 20

COGNOS e-APPLICATIONS DEMAND-SIDE PERFORMANCE MANAGEMENT

Figure 21

Gowling Lafleur Henderson LLP

COGNOS e-APPLICATIONS FINANCIAL PERFORMA NCE MANAGEMENT

Figure 22

Figure 23

ORGANIZATIONAL DIMENSIONS FOR FINANCIAL ANALYSIS

FUNCTIONAL DOCUMENT DIMENSIONS

MASTER DIMENSIONS

COMPANY CONSOLIDATION | COST CENTER | BUSINESS AREA | CHART OF ACCOUNTS | ACCOUNTING DOCUMENT CLASS | CUSTOMER | EMPLOYEE

The primary function of the Accounts Receivable organization is to ensure the full and timely collection of credit sales from the customer base. The Cognos e-Application for Accounts Receivable provides the level of analysis required to successfully:

- ensure timely account payments and accelerate account receivables cash inflow
- effectively management credit and collections policies which promote sales and maintain reliable credit accounts
- contribute in reducing operating costs and overall cost to serve customers
- improve the accounts receivable process and management
- support related corporate functions - sales and marketing, finance and control, treasury
- improving customer relations through the use of full information, comprehensive analysis and clear communication

ACCOUNTS RECEIVABLE FUNCTIONAL PERFORMANCE

- Evaluate effectiveness of the the A/R function in collecting outstanding accounts within terms
- Monitor organization aging schedule
- Assess high risk receivables and bad debts accounts
- Manage average collection period, and track how performance has changed over time
- Monitor the organizations Days of Sales Outstanding

Sample of Key Performance Indicators include:
- Average Collection Period
- Aging Schedule
- Days of Sales Outstanding
- Average Days Past Due
- Collection Effectiveness Index
- Bad debt loss index
- ...

CUSTOMER CREDIT SCORECARD

- Monitor payments trends of individual customers and customer groups; percent of dollars and transaction past due
- Analyze customer patterns in acceptance of terms
- Assess customer transactions; number of cheques to invoices, adjustments
- Evaluate customer profitability and cost to serve
- Monitor customer specific aging schedules by number of transactions, and total dollars

Sample Key Performance Indicators include:
- Customer aging schedule
- Customer average days to pay
- Percentage and total of customer transactions and dollars past due
- Cost to Serve Customer
- Customer Profiles

QUALITY OF ACCOUNTS RECEIVABLE

- Evaluate customer base and identify best candidates for financing or sale of Accounts Receivable
- Identify accounts that require action to prevent potential negative impact on financing requests
- Report on aging schedules, and credit history for selected customers
- Present detailed customer credit profiles demonstrating stability of accounts in support of financing institution requests for integration

Sample of financing KPIs include:
- Customer base balance information
- Customer base aging schedule
- Customer profile detail data on average days to pay
- High risk, bad debt profiles

CORPORATE SELF-APPRAISAL

- Evaluate the adjustment activities and trends.
- Assess reasons for adjustments - the related values and frequency, and identify potential problem areas
- Identify the sources and distribution of specific adjustments types: by customer, by region, by A/ R analyst
- Evaluate the impact of changes in corporate practices (ex. supply chain, fulfillment or billing) on adjustment and and collections

Sample Key Performance Indicators include:
- Adjustment counts by group and type
- Total adjustment $ values by group and type
- Adjustment counts and $ value as a percent of total
- ...

ACCOUNTS RECEIVABLE CASH INFLOW FORECAST

- Project future Accounts Receivable Cash Inflow based on current open items and payments terms
- Analyze expected incoming cash into the future by day, based on three scenarios:
  - amount due if no customers take terms
  - amount due if all customers take terms
  - amount due based on analysis of customer's average days to pay
- Combine with Accounts Payable Cash Outflow analysis for AR-AP Cash flow Analysis

Sample of cash inflow KPIs include:
- Receivables dollars and item counts due into the future by day
- Three scenario evaluation: no discounts - all discounts - average days to pay

ACCOUNTS RECEIVABLE ORGANIZATIONAL EFFECTIVENESS

- Evaluate effectiveness of A/R analysts and contribution to functional performance based on customer base and proportion of A/R dollars under management
- Monitor trends in new and open transaction volumes by type
- Assess distribution of workload across existing resources (analysts and clerks) as it relates to support in achieving A/R objectives
- Evaluate process effectiveness (time to clear open items)

Sample of organizational effectiveness KPIs include:
- New to Open transaction counts, values and ratio
- By analyst analysis of customers under management (count), account balances (and % of total), DSO, average days to collect, bad debt

ORGANIZATION

OPERATIONAL ENTITY DIMENSIONS

ACCOUNTS RECEIVABLE ACTIVITY DOCUMENT

FINANCIAL TRANSACTION ACTIVITY DIMENSIONS

ALL TIME (TIME.FISCAL) | UNIT OF MEASURE | UNIT OF MEASURE CONVERSION

UNIVERSAL DIMENSIONS

Figure 24

FUNCTIONAL DOCUMENT DIMENSIONS

ACCOUNTING DOCUMENT CLASS

ORGANIZATIONAL DIMENSIONS FOR FINANCIAL ANALYSIS

| COMPANY CONSOLIDATION | PROFIT CENTER | COST CENTER | BUSINESS AREA | GENERAL LEDGER BUDGET VERSION | CHART OF ACCOUNTS |

GENERAL LEDGER ANALYSIS

The Financial Accounting function plays a pivotal role in the preparation and analysis of financial transactions which serve as barometer of their company's financial health. This information is critical in strategic planning, program management and execution, and financial performance monitoring and reporting.

The Cognos e-Applications for General Ledger provides the analysis necessary to successfully:

- reduce period-end close processes, accelerate financial reporting and distribution cycles
- allow financial professionals to analyze business performance, not merely collect and report data
- distribute financial information applicable to department managers for analysis and planning
- trace and grasp shifts in expenses and revenues over time
- compare performance: actual versus plan
- easily determine whether and how much organizations are contributing to profit or revenue
- pinpoint the real issues or opportunities that drive profitability

FINANCIAL PERFORMING AND ANALYSIS

- Produce detailed financial statements "on-demand" with ability to drill down from account hierarchies to transaction level detail for each GL account
- Multi-dimensional Income Statement and Balance Sheet Analysis: Period over period, multiple period views (month, quarter, year, fiscal year, year-to-date), trends over time, vertical analysis, Income Statement variance from budget
- Trial balances
- Analyze across financial management entities; profit and cost centres, business area

Sample Financial Performance reporting analysis KPIs includes:

- Account balances
- % change of account balance summaries over time

BUDGET ANALYSIS

- Multi-dimensional financial analysis of actuals against budget
- Evaluate keys drivers in the Income Statement
- P&L variance reporting - Income Statement expense categories, rank accounts with respect to successfully achieving plan
- Balance Sheet variance reporting

Sample Budget Analysis Performance reporting analysis KPIs includes:

- Account budget $
- Variance between account budget $ and account balance actuals

KEY FINANCIAL RATIO REPORTING AND ANALYSIS

- Multi-dimensional key ratio analysis across legal and financial management entities: including leverage ratios, liquidity ratios, and profitability of efficiency ratios
- Variance analysis of actual ratio to budget values
- Define exceptions in ratio calculation methods through use of e-Application multipliers

Sample of Key Financial Ratios include:

- Current Ratio
- Quick Ratio
- Inventory Turnover
- Fixed Asset Turnover
- Total Asset Turnover
- Debt to Asset
- Time Interest Earned
- Profit Margin
- Basic Earning Ratio
- Return on Assets
- Return on Equity

OPERATIONAL PERFORMANCE AND ANALYSIS

- Apply financial data to analyze the organization's past performance and assess its current financial standing
- Compare corporate financial performance to industry benchmarks
- Support development of short and long-term plans with the depth and flexibility of financial analysis information (detail and summary level)

Sample Operational Performance analysis include:

- Transaction counts
- GL account transaction level detail

| GENERAL LEDGER ACTIVITY DOCUMENT | ACCOUNTS PAYABLE ACTIVITY DOCUMENT |

FINANCIAL TRANSACTION ACTIVITY DIMENSIONS

| ALL TIME (TIME, FISCAL) | FINANCIAL CURRENCY CONVERSION | FLEXI-DIMENSION |

UNIVERSAL DIMENSIONS

Figure 25

MASTER DIMENSIONS

| EMPLOYEE | VENDOR | ACCOUNTING DOCUMENT CLASS |

FUNCTIONAL DOCUMENT DIMENSIONS

ACCOUNTS PAYABLE ANALYSIS

The Accounts Payable (A/P) function is tasked with paying outstanding debt to vendors, employees and other parties to which the company owes money. A/P's role is to ensure that the debts are paid on time (whether or not discounts are taken), but no sooner than necessary. The ultimate goal is to maximize cashflow while supporting positive relationships with vendors, and other creditors

The Cognos e-Application for Accounts Payable Analysis delivers the information necessary for A/P to:

- ensure timely account payment and optimize Accounts Payables cash outflow
- support strong vendor relations
- reduce operating costs
- improve the accounts payable process and management
- support related functions - procurement and inventory, finance (GL) and control

ACCOUNTS PAYABLE VENDOR PROFILE

- Comparative analysis of payments patterns across vendors and vendor groups: rank base on percent of dollars and transactions (current, past due)
- Analyze payment performance history by vendor; prioritize outgoing payments
- Identify optimal conditions for taking discounts offered
- Assess vendor related transactions: number of cheques to invoices, adjustments
- Monitor vendor specific aging schedule and account balance details

Sample of Key Performance Indicators include:
- Vendor aging schedule
- Vendor average days to pay
- Percentage and total of transactions and dollars past due
- Vendor A/P Profiles
...

ACCOUNTS PAYABLE FUNCTIONAL PERFORMANCE

- Evaluate effectiveness of the the A/P function in paying creditors for outstanding items within terms
- Monitor organization aging schedule
- Manage future outgoing payments based on size and number of payable; ensure sufficient funds available when needed
- Analyze average payment period, and track how performance has changed over time
- Analyze A/P effectiveness in capitalizing on discounts
- Assess A/P accuracy in payments to vendors

Sample of Key Performance Indicators include:
- Average days to pay
- Aging Schedule
- Average Days Past Due
- Total dollars / % past due
- % payments on time vs. past due

ACCOUNTS PAYABLE CASH OUTFLOW FORECAST

- Project future Accounts Payable Cash Outflow based on current open items and payments terms
- Analyze expected outgoing cash into the future by day, based on three scenarios:
  - amount due if no vendor terms are taken
  - amount due if all available discounts are taken
  - amount due based on analysis of average days to pay vendors
- Combine with Accounts Receivable Cash Inflow analysis for AR-AP Cash flow Analysis

Sample of cash inflow KPIs include:
- Payables dollars and item counts due into the future by day
- Three scenario evaluation: no discounts - all discounts - average days to pay

ACCOUNTS PAYABLE ORGANIZATIONAL EFFECTIVENESS

- Evaluate effectiveness of A/P analysts/clerks and contribution to functional performance
- Monitor trends in new and open transaction volumes by type
- Assess distribution of workload across existing resources (analysts and clerks) as it relates to support in achieving A/P objectives
- Evaluate process effectiveness (time to clear open items), error in payments

Sample of organizational effectiveness KPIs include:
- New to Open transaction counts, values and ratio
- Average time to paypopen items
- Number and value of duplicate payments
- Number of transactions processed by employee
...

ORGANIZATIONAL DIMENSIONS FOR FINANCIAL ANALYSIS

| COMPANY CONSOLIDATION | COST CENTER | BUSINESS AREA | CHART OF ACCOUNTS |

OPERATIONAL ENTITY DIMENSIONS

| ORGANIZATION | ALL TIME (TIME.FISCAL) |

UNIVERSAL DIMENSIONS

| FINANCIAL CURRENCY CONVERSION | USER CATEGORY |

Figure 26

FUNCTIONAL SPECIFIC DIMENSIONS

MASTER DIMENSIONS

MATERIAL

VALUATION | BATCH | STOCK CLASS

FUNCTIONAL DOCUMENT DIMENSIONS

MATERIAL MOVEMENT DOCUMENT CLASS

INVENTORY ANALYSIS

The key objectives of the inventory management (IM) function are to ensure that there is sufficient stock to meet the demand of both internal and external customers, manage the cost of owing inventory, forecast and plan for stock levels, and to identify opportunities for improved cashflow.

To accomplish these objectives, managers need the information and analysis capable of providing a clear understanding of the investment made in inventory. This includes in-depth analysis of where money is being invested, how often it is being turned, who is driving the demand, and for what items. This must be tied to analysis on the effectiveness of this investment in meeting the demand, with a view from both a corporate level as well as from individual plants and warehouses. The Cognos e-Application for Inventory Analysis delivers the key information required to analyze:

- organizational investment in inventory
- functional effectiveness in managing and forecasting requirements
- the movement of inventory through the organization
- the allocation of resources
- how effective the organization has been in satisfying the demand of internal and external customers

INVENTORY FORECASTS

- Analyze trends in forecasted levels across commodities over time
- Compare forecasted requirements to actuals inventory requirements across materials and locations
- Analyze forecast accuracy across organizations, storage areas and material; evaluate how accuracy has evolved over time

Multi-dimensional analysis of stock usage forecast analysis performed using:
- Forecast period value
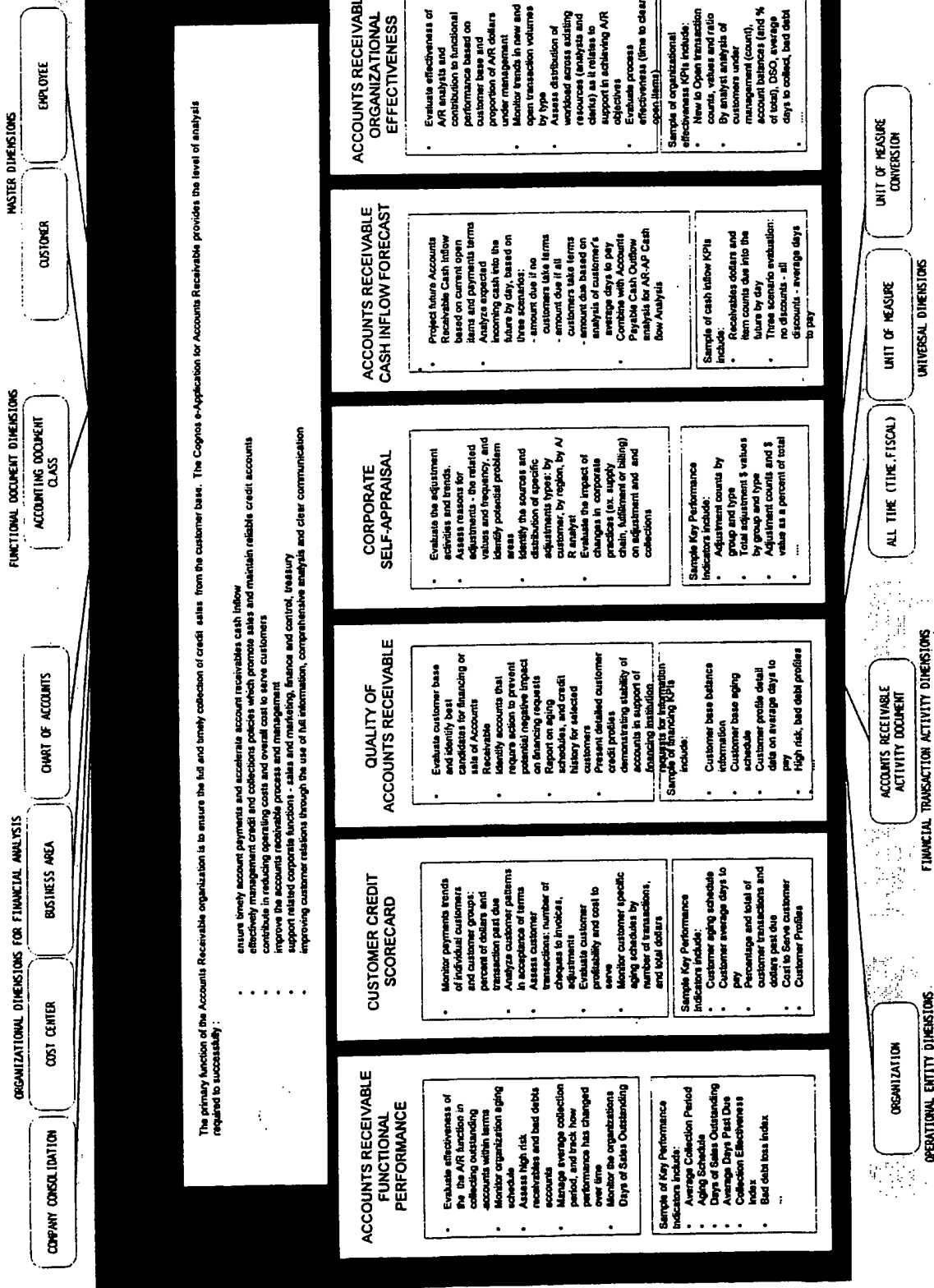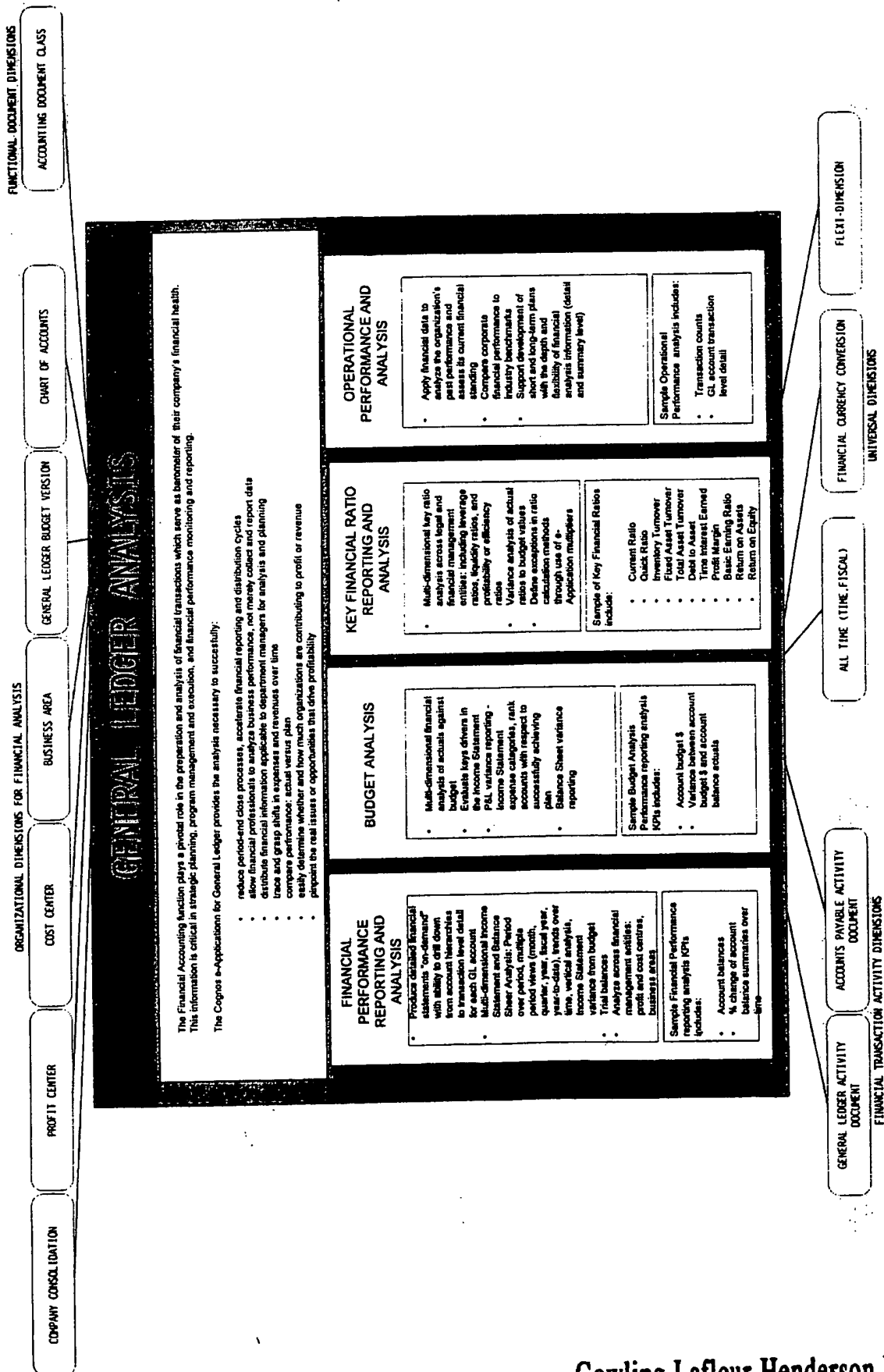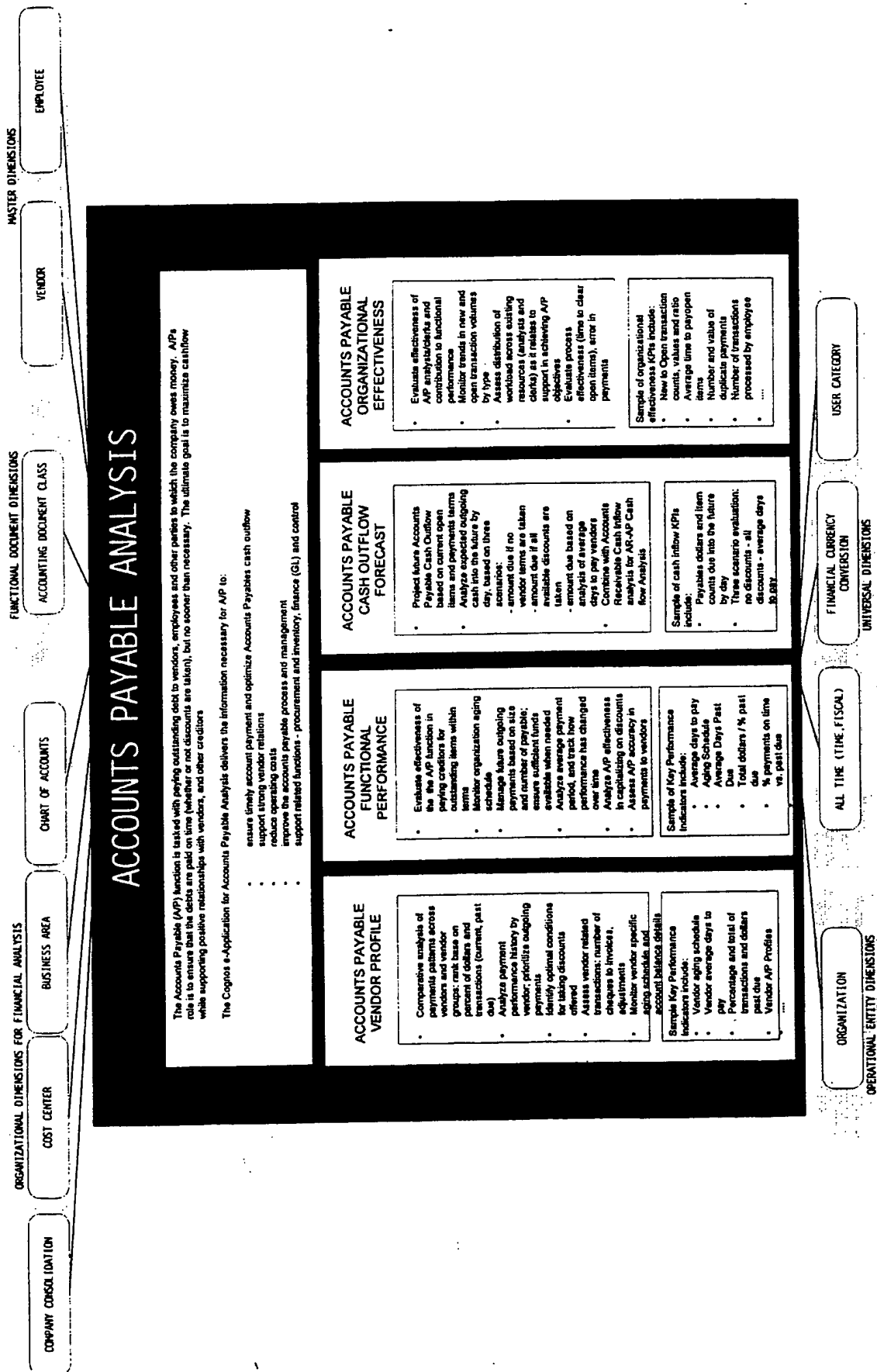- Corrected forecast values
- Seasonal forecast index values

PHYSICAL INVENTORY ANALYSIS

- Conduct comparative analysis of physical inventory accuracy across storage locations, and identify any trends as they relate to specific materials
- Evaluate physical inventory analysis within given storage areas (plant, warehouse to storage location) and identify sources of shortages or overages, and the related quantities and dollar value.
- Analyze the areas where discrepancies occur most often; by material or material type, or location

Multi-dimensional forecast analysis achieved with following:
- Book stock level count
- Book stock group currency value
- versus Actual stock level and group currency value

MATERIAL RESERVATION ANALYSIS

- Analyze material reservation activity for insight into the demands for stock to fulfil internal and external customer requirements
- Evaluate the effectiveness of warehouses in meeting requests for inventory in full and how it compares to excess stock levels for specific materials or material segments
- Compare the activity across materials of confirmed reserved to actual stock withdrawn from inventory
- Analyze lead-times and variations in request for stock to required date

Multi-dimensional analysis of reservations on:
- Reserved quantities
- Withdrawn quantities
- Confirmed quantities

DEMAND ANALYSIS

- Evaluate reason for internal movements of inventory - whether goods issues for internal or external customers
- Analyze the type, volume and frequency of demand for inventory customers: by material type (raw material, MRO, finished goods) or specific material. Assess inventories
- Evaluate movement effectiveness in meeting demand of the all customer; and how this has evolved over time (ideally where demand has not been met and compare across materials and locations

Demand analysis KPIs include:
- Transaction counts by customer
- Average transaction values by customer
- Number of units issued by customer
- ...

MATERIAL MOVEMENT ACTIVITY ANALYSIS

- Analyze the nature and level of the activity of goods receipts, issues and transfers (down to individual movement types) - and how they relate to stock levels, shortages, resource allocation and the various process associated with the function.
- Evaluate movement frequency and quantities by product type and/or organization
- Analyze transaction volumes processed by inventory employees (ex. goods receipts)
- Provide a detailed analysis of stock movement in and out of inventory. Analyze movements multi-dimensionally.
  - Movement quantities
  - Movement values

STOCK OVERVIEW AND VALUATION ANALYSIS

- Comparative analysis of summary and detail information on current inventory investment and from high-level to specific segments of materials, storage, stock types and status
- Analyze by materials hierarchies, ABC analysis, and by status (ex. restricted stock, in quality control, on consignment)
- Comparative analysis across plants and warehouses of inventory velocity, ability to meet demand, average stock, and min-max stock levels

Sample metrics include:
- Average stock level and value
- Minimum and maximum stock levels
- Inventory turns
- Stock level coverage
- Inventory stockouts
- Zero-stock days

PLANT | MATERIAL STORAGE | STORAGE BIN | SHIPPING POINT

OPERATIONAL ENTITY DIMENSIONS

ALL TIME (TIME,FISCAL) | UNIT OF MEASURE | UNIT OF MEASURE CONVERSION | USER CATEGORY

UNIVERSAL DIMENSIONS

Figure 27

PROCUREMENT ANALYSIS

ORG DIMENSIONS FOR FINANCIAL ANALYSIS

- COST CENTER

MASTER DIMENSIONS
- EMPLOYEE
- CUSTOMER
- MATERIAL
- VENDOR

FUNCTIONAL DOCUMENT DIMENSIONS
- PROCUREMENT DOCUMENT CLASS
- CONTRACT ACTIVITY DOCUMENT
- REQUISITION ACTIVITY DOCUMENT
- PURCHASE ORDER ACTIVITY DOCUMENT
- QUOTATION ACTIVITY DOCUMENT

The key objective of the procurement function is to secure a reliable supply of quality product to meet the material requirements of both internal and external customers - all at the lowest total cost of ownership. Effective purchasing organizations focus on sourcing from a consolidated buyer list to maximize corporate leverage, and adopting policies that automate repetitive processes. The impact of procurement's impact on supply chain management has placed focus on the need for the function to understand the effects of the buying decision across all organizational processes - from inventory to manufacturing through sales and service

The Cognos e-Application for Procurement Analysis provides the comprehensive analysis required to:

- ensuring timely availability of commodities when needed
- maximizing buying effectiveness through realization of full leverage potential across commodities
- identify opportunities for development of strategic buying relationships
- increase customer satisfaction through meeting demand and delivery of quality product
- assess buying effectiveness of the purchasing organization down to the commodity and individual buyer
- recognize areas for improvement in the procurement cycle
- analyze expenditures, commodities purchased, vendor performance, buyer performance

e-PROCUREMENT ANALYSIS
- Analyze the activity level with e-procurement channels; monitor materials and material group purchases (units, $ volumes)
- Comparative analysis of and purchasing trends between e-channels and traditional channels; analyze the proportion of purchases between channels and "channel convergence" over time
- Analyze process efficiency in e-channel and compare to traditional channel
- Assess which commodities are best suited for e-procurement channel
- Consolidate vendor purchase activity from across multiple channels
- Evaluate success of migrating purchases from traditional to e-channel

PROCUREMENT ORGANIZATIONAL EFFECTIVENESS
- Evaluate buying organization effectiveness; rank buyers by dollars, volume, percent of budget controlled, stability of price and source, and quality of vendor relationships managed
- Identify opportunities to consolidate buying from across buyers based on commodity or vendor-centricity
- Analyze buyer performance and assess whether there is a requirement for redistribution of activities

Sample KPIs for organizational effectiveness analysis include:
- Total dollars per buyer control (as percent of total)
- Count of materials per buyer (as % of total)
- Total number of vendors per buyer
- Transaction processed counts by employee (trend)......

PROCUREMENT PROCESS EFFECTIVENESS
- Evaluate various stages of the procurement process;requisitions, vendor selection, purchase orders and contracts(leverage dollars and units, transactions)
- Identify opportunities to streamline purchasing process - eliminating non-value adding steps
- Evaluate the efficiency of corporate release procedures in ensuring timely orders
- Analyze time and efficiency in passing through purchasing cycle phases, and how it has changed over time

Sample process effectiveness KPIs include:
- Average PO and contract values
- % of POs/Contracts used
- Days from Requisition to PO; average days by release procedure type
- Ratio of Requisition to POs...

MATERIAL DEMAND ANALYSIS
- Analyze commodities trends by internal customer, request types (MRO, job orders,MRP); evaluate material list-dollars spent and volume purchases
- Evaluate the proportion of buying budget spent on each respective demand channel; and monitor changes over time
- Assess buying patterns attributed to customers and identify opportunities for efficiencies in process; consolidate like demands to fewer vendors for increased buying leverage

Demand analysis related KPIs include:
- Dollars spent and units purchased (as % of total) by cost centre
- Transaction type counts and average value,by cost centre

MATERIAL RELATED EXPENDITURE PROFILE
- Analyze total purchases and distribution of expenditure and volume
- Comparative evaluation of material related expenditure over time, rank on annual dollars spent and units
- Profile vendors by specific commodity, assess distribution of single commodity purchases across vendors
- Profile material list; division of spend, source list, ABC analysis; monitor changes in price, total landed costs, fluctuations in number of items carried
- Assess transaction history (summary and detail) by materials and material type

Material expenditure analysis KPIs include:
- Number and value of units purchased
- % of total material purchases....

PROCUREMENT VENDOR PROFILE
- Comparative evaluation of vendor related expenditure over time, ranked on annual dollars spent and units purchased (commodity)
- Profile vendors by specific material list, and by customers driven; track price per unit changes
- Identify opportunities to consolidate vendor list to sole or single source; assess potential for redistribution of spend based on performance
- Assess transaction history (summary and detail) by vendor and total

Vendor profile KPIs include:
- Dollars spent with vendor, % of total dollars spent
- Units purchased, % change over time
- Count of materials purchased from vendor

FUNCTIONAL SPECIFIC DIMENSIONS
- RELEASE STRATEGY
- PROCUREMENT STATUS
- USER CATEGORY

UNIVERSAL DIMENSIONS
- UNIT OF MEASURE CONVERSION
- FINANCIAL CURRENCY CONVERSION
- ALL TIME (TIME, FISCAL)

OPERATIONAL ENTITY DIMENSIONS
- PLANT
- ORGANIZATION

Figure 28

Gowling Lafleur Henderson LLP
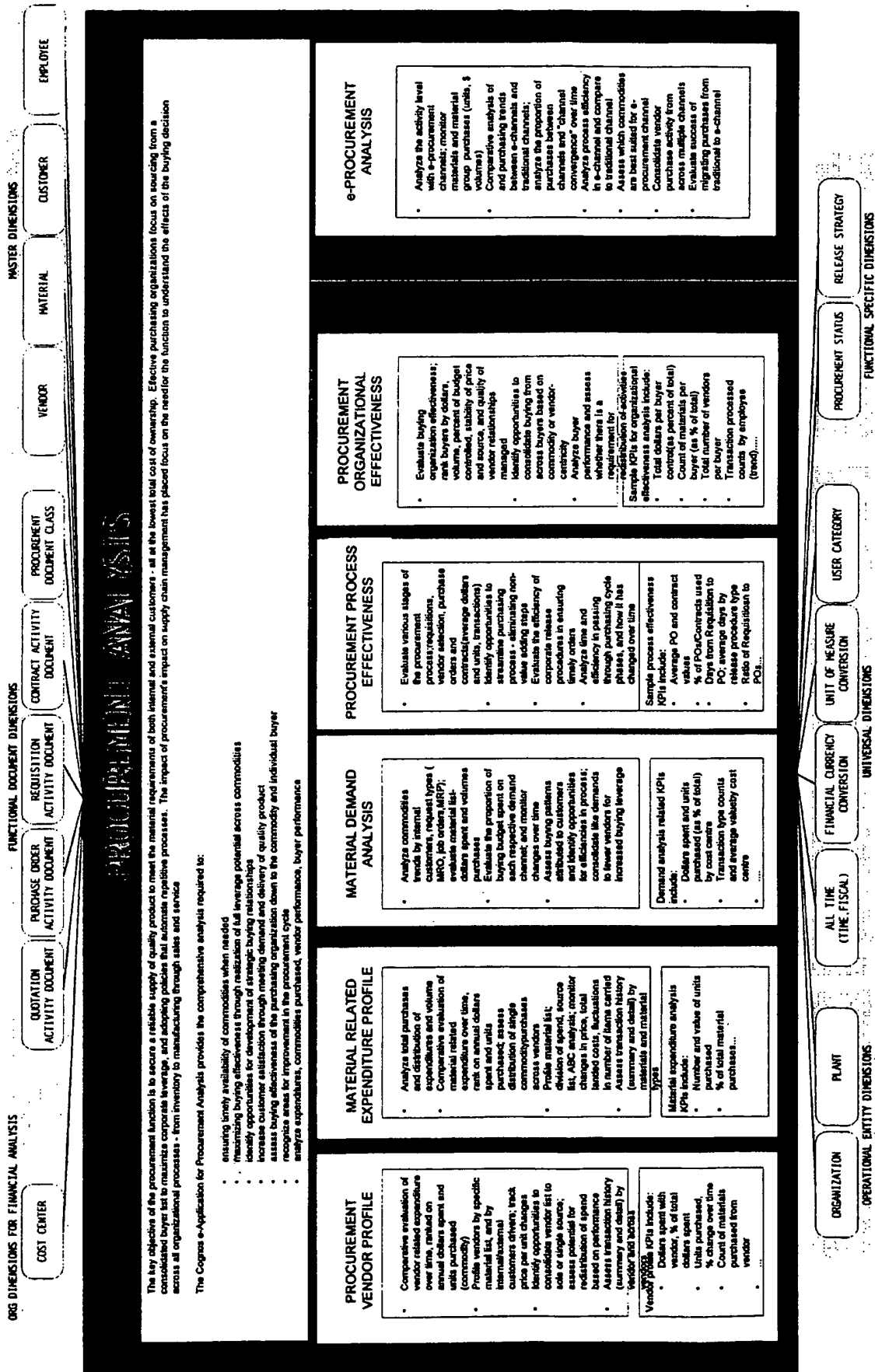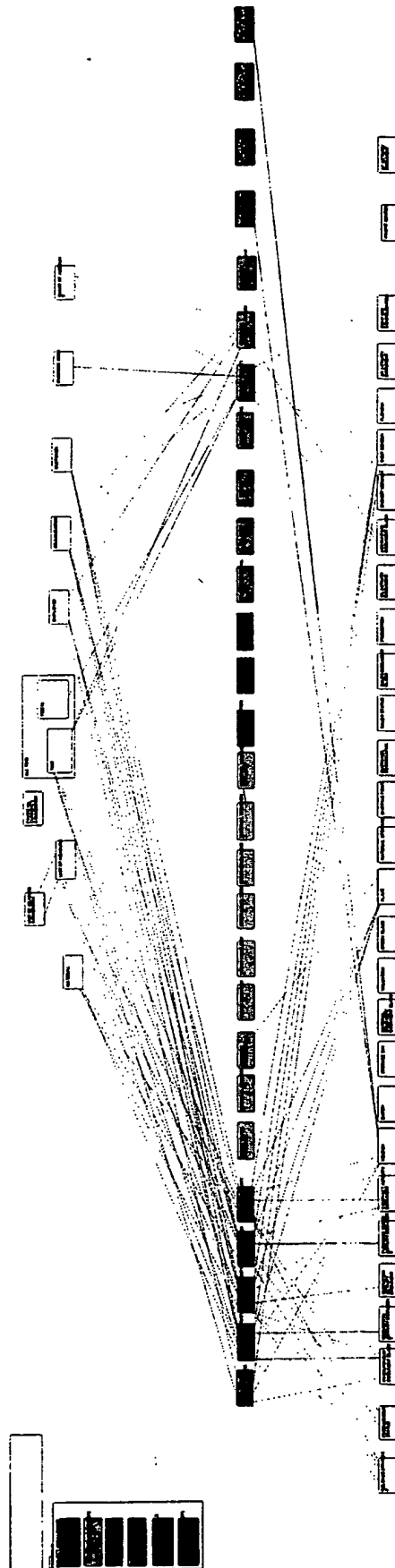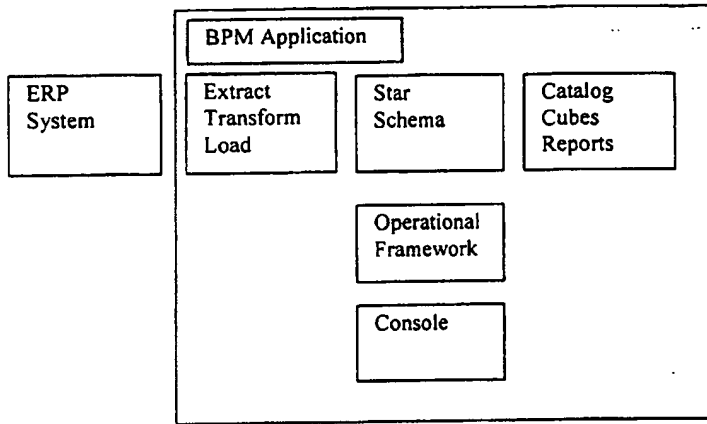
Figure 29

Figure 30

ILLUSTRATION OF SALES AND MARKETING INFORMATION REQUIREMENTS AT VARIOUS
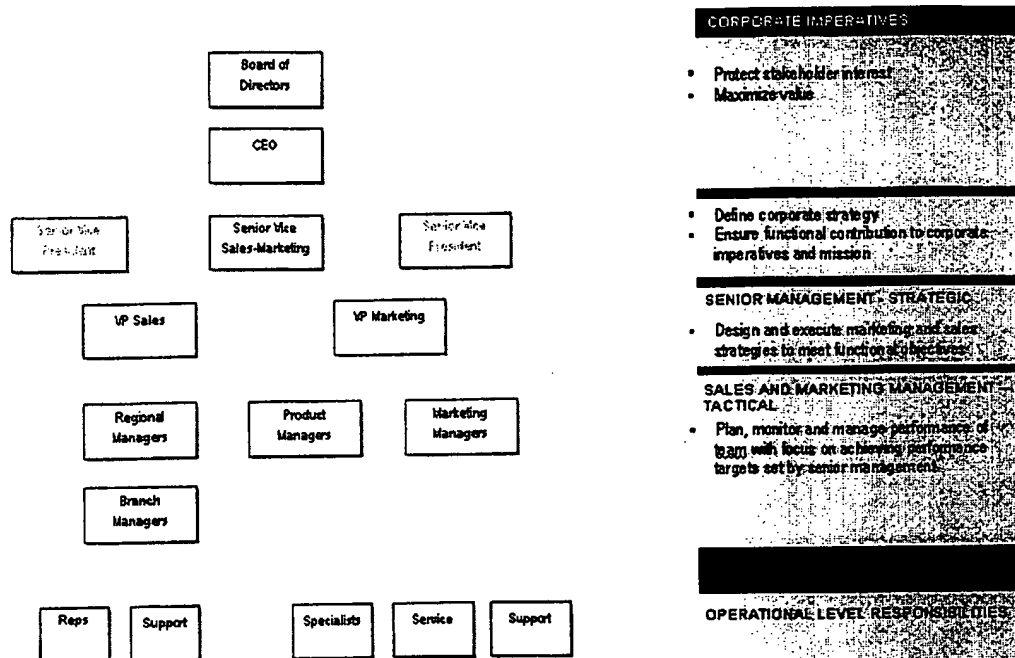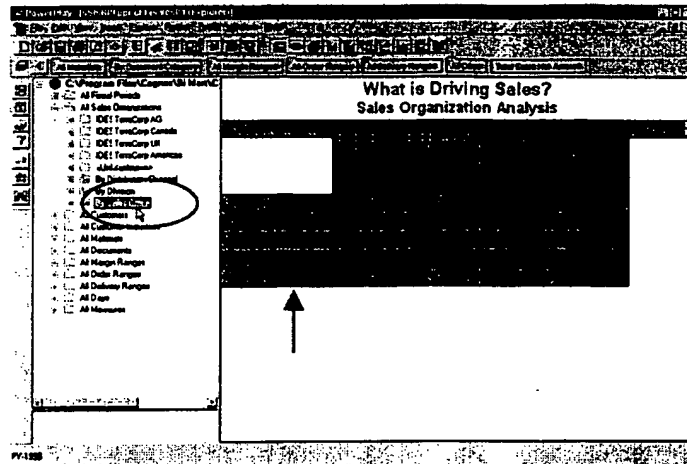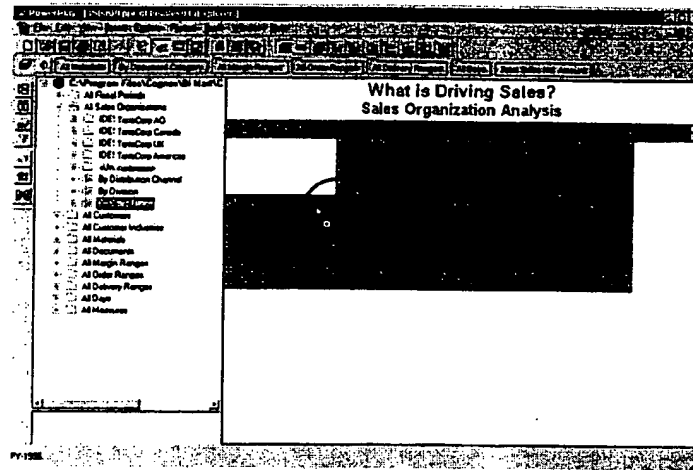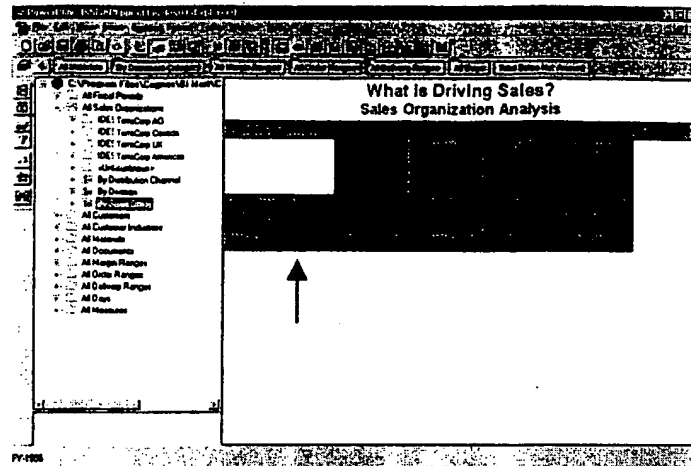MANAGEMENT LEVELS WITHIN THE ORGANIZATION

Fig. 31

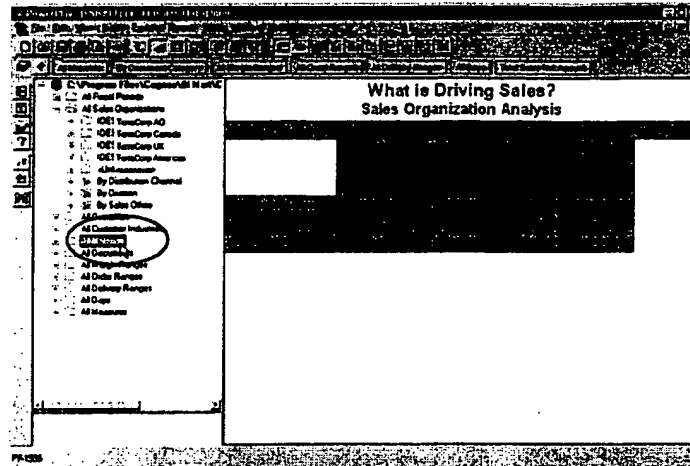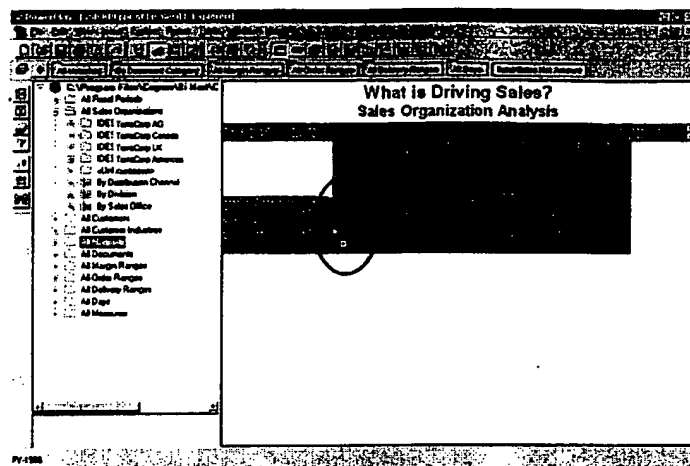Fig. 32

Figure 33

Figure 34
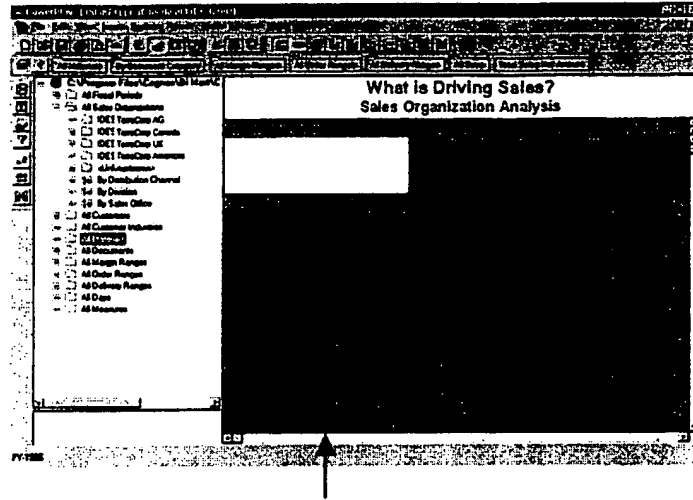
Figure 35

Gowling Lafleur Henderson LLP

Figure 36

Figure 37

ILLUSTRATION OF ACCOUNTS RECEIVABLE INFORMATION REQUIREMENTS AT VARIOUS MANAGEMENT LEVELS WITHIN THE ORGANIZATION

Figure 38

Figure 39

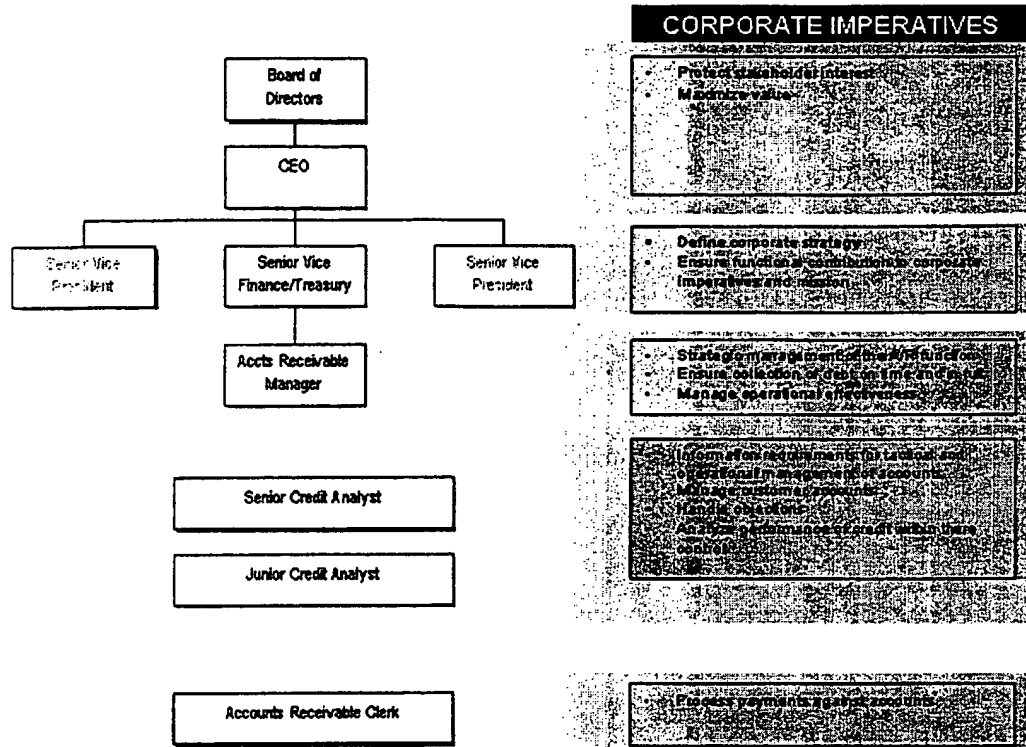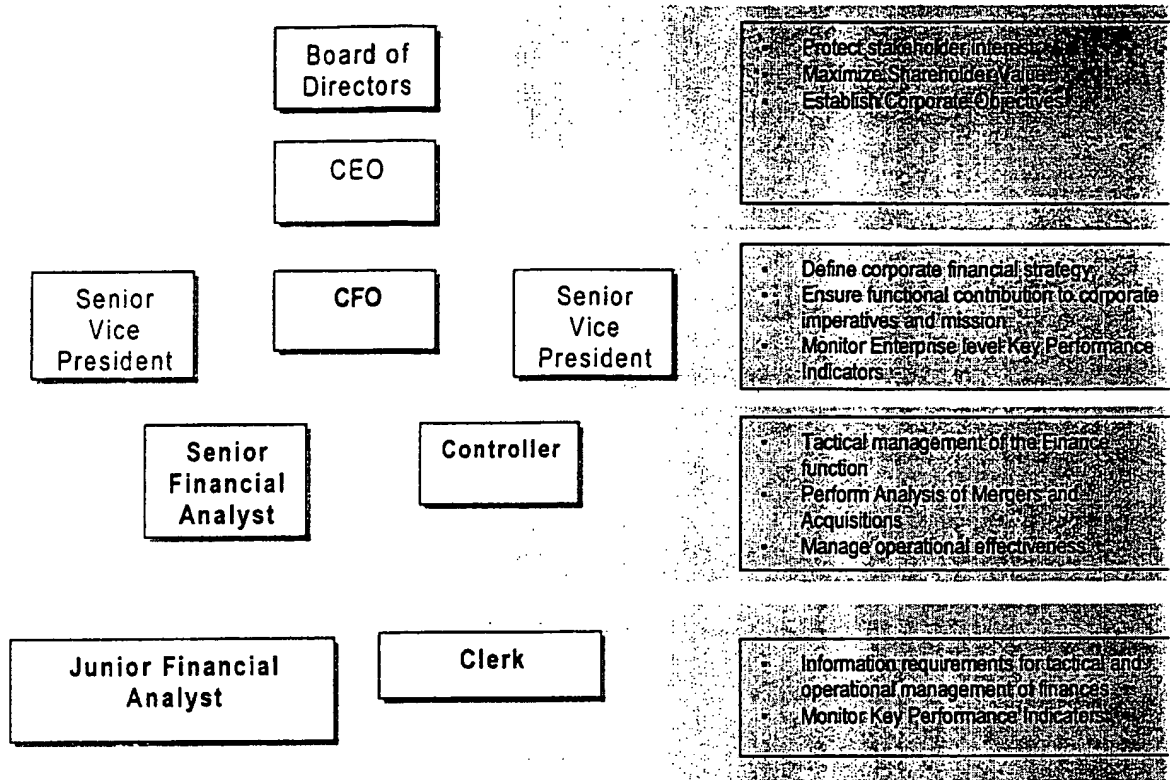|			
	Board of Directors		Protect stakeholder interests Maximize Shareholder Value Establish Corporate Objectives
	CEO		
Senior Vice President	CFO	Senior Vice President	Define corporate financial strategy Ensure functional contribution to corporate imperatives and mission Monitor Enterprise level Key Performance Indicators
	Senior Financial Analyst	Controller	Tactical management of the Finance function Perform Analysis of Mergers and Acquisitions Manage operational effectiveness
	Junior Financial Analyst	Clerk	Information requirements for tactical and operational management of finances Monitor Key Performance Indicators

ILLUSTRATION OF ACCOUNTS PAYABLE INFORMATION REQUIREMENTS AT VARIOUS
MANAGEMENT LEVELS WITHIN THE ORGANIZATION

CORPORATE

```
┌──────────────┐
│   Board of   │
│  Directors   │
└──────┬───────┘
       │
┌──────┴───────┐
│     CEO      │
└──────┬───────┘
```

- Protect stakeholder interest
- Maximize value

```
┌────────────────┐  ┌────────────────┐  ┌────────────────┐
│  Senior Vice   │  │   Senior VP    │  │  Senior Vice   │
│   President    │  │  Finance/Trea  │  │   President    │
│                │  │      sury      │  │                │
└────────────────┘  └───────┬────────┘  └────────────────┘
                            │
                    ┌───────┴────────┐
                    │    Account     │
                    │    Payable     │
                    │    Manager     │
                    └────────────────┘
```

- Define corporate strategy
- Ensure functional contribution to corporate imperatives and mission

- Strategic management of the A/P function
- Ensure payment of debt on time and in full
- Manage operational effectiveness

```
┌────────────────────┐
│ Senior Account Payable │
│      Analyst       │
└────────────────────┘

┌────────────────────┐
│ Junior Account Payable │
│      Analyst       │
└────────────────────┘
```

- Information requirements for tactical and operational management of accounts
- Manage vendor accounts
- Handle objections
- Analyze performance of debt within their control

```
┌────────────────────┐
│  Accounts Account  │
│   Payable Clerk    │
└────────────────────┘
```

- Process payments against accounts

Figure 40

Gowling Lafleur Henderson LLP
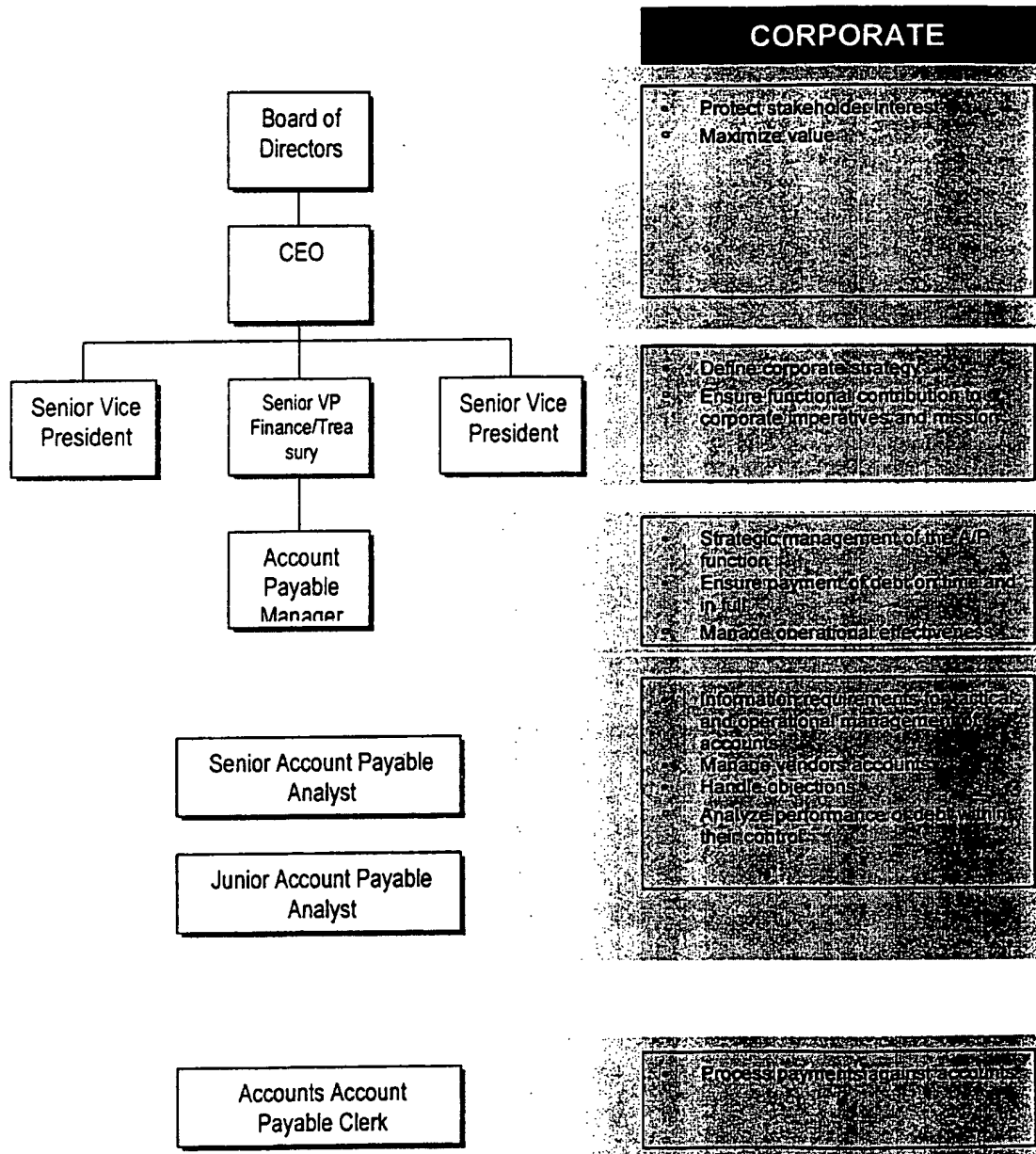
ILLUSTRATION OF INFORMATION REQUIREMENTS AT VARIOUS MANAGEMENT
LEVELS WITHIN THE ORGANIZATION

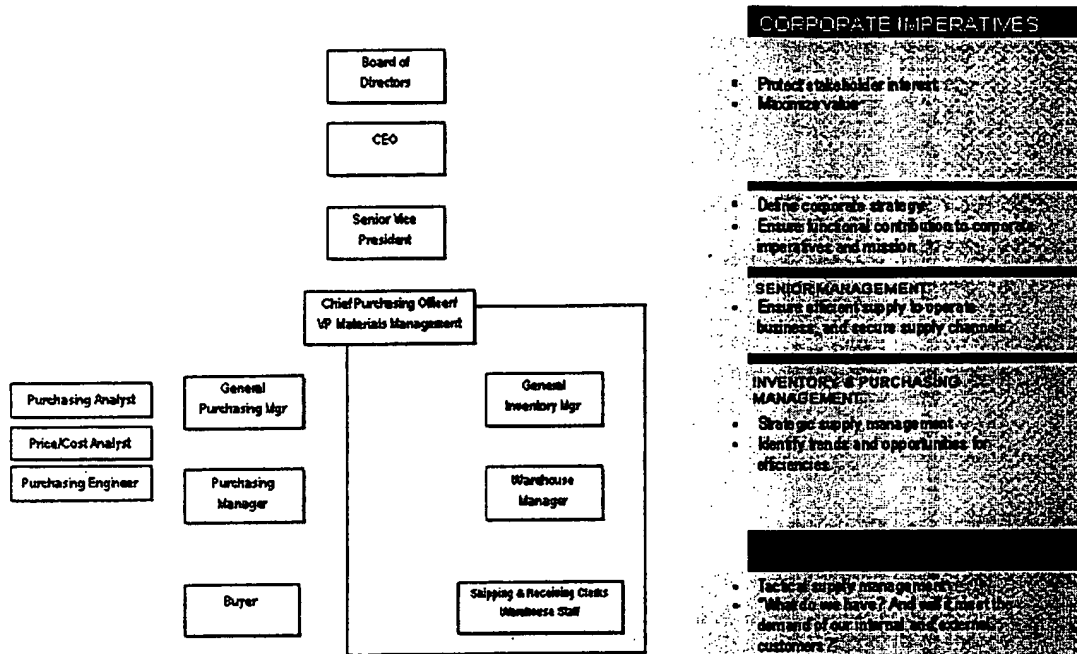THE INVENTORY MANAGEMENT AND PROCUREMENT FUNCTION WITHIN A CORPORATE ORGANIZATIONAL STRUCTURE

Figure 41

ILLUSTRATION OF PROCUREMENT INFORMATION REQUIREMENTS AT VARIOUS
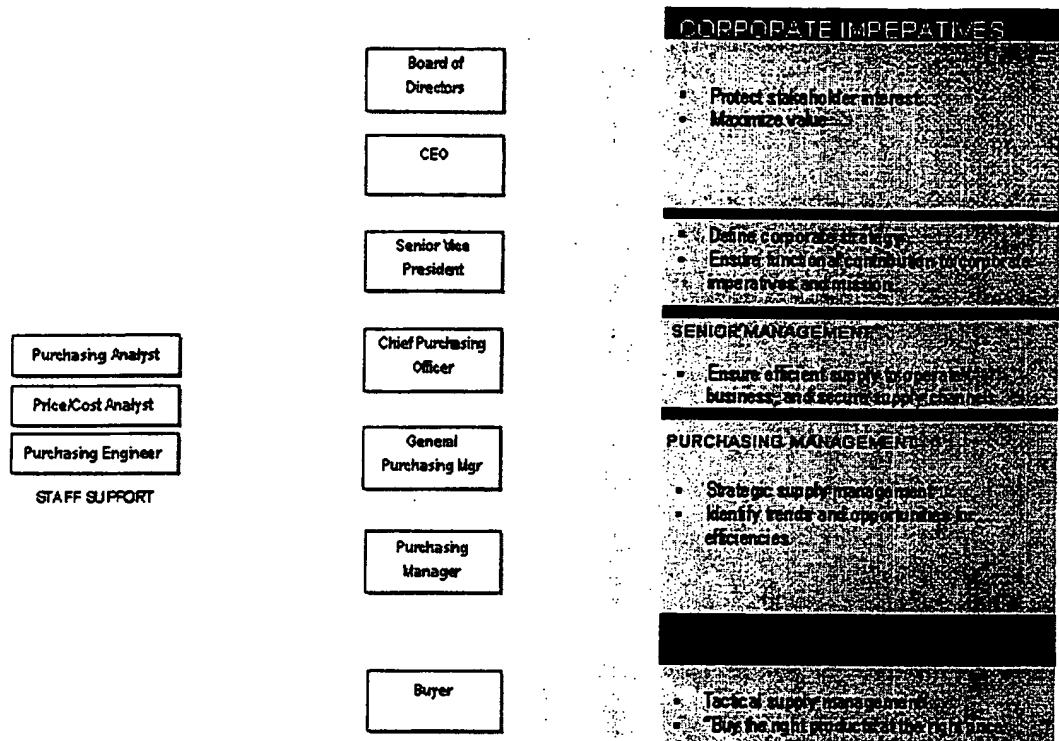MANAGEMENT LEVELS WITHIN THE ORGANIZATION

Figure 42